The Builder.

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London County Council: the Blunder in the New Street.

THE last agenda paper of the London County Council sets forth in detail the various schemes for the new street from Holborn to the Strand which have been under the consideration of the Improvements Committee, as embodied in their Report dated March 4, which however has not yet come under the consideration of the general meeting of the Council. For this reason, however, it is all the better to enter into some criticism in regard to them before it is too late.

The scheme now favoured by the Improvements Committee, and called "plan A", is in most respects practically the same as that which was brought up to the Council in July 1892. It provides a street 100 feet in width, starting southwards from Holborn on the line of Little Queen-street (which is widened eastwards) and coming in a straight line southwards to St. Mary-le-Strand. The old plan provided a circus a little more than half way down the street, level with the south road of Lincoln's-inn-fields, and with an opening into Lincoln's-inn-fields eastward, and the preparation for a spur street westwards towards Wellington-street and Waterloo Bridge. A terrace crescent was provided immediately to the north of St. Mary-le-Strand, into which the main new street fell, reaching the Strand by short gradients eastward and westward behind St. Mary's Church. These two features, the circus and the crescent terrace road, have now been abandoned; but it is proposed to take a new spur street in a south-easterly direction towards St. Clement Danes, and to close up Wych-street (which would then be useless); and to form a corresponding spur street in a south-westerly direction, by widening Blackmoor-street and White Hart-street to 60 ft. by setting back their south-eastern sides, and widening the part of Exeter-street immediately adjoining Catherine-street to the same extent by setting back its northern side. The main street would continue southwards, as before, to the back or north side of St. Mary-le-Strand, the Holywell-street block being removed and the Strand roadway continued on a level (or nearly so) on each side of the church.

We fail to see the use of this triple debouchement into the Strand. The traffic that will come down the new street into the Strand will want either to go east or west, or to continue southwards across the river. If a vehicle coming from the north by the new street requires to go either eastward or westward along the Strand, its natural course will be by the line of one of the spur streets, and it is of no possible use to give it a street straight down into the Strand for it to go a little way along the Strand to a point which it would have reached more quickly by one of the spur streets, east or west. It would be merely crowding that short length of the Strand unnecessarily, and inviting traffic to go round two sides of a triangle when it might go by a diagonal—which it will certainly not do. The fact seems to be that the County Council or the Improvements Committee have been bitten by the idea of making St. Mary-le-Strand an architectural objective at the end of the new street; it is the first time in their corporate existence that they ever took such an object into consideration at all; and although they have now been told over and over again that St. Mary-le-Strand, owing to the peculiarities of its design, is not architecturally fitted to form an object at the end of a vista at right angles to its flank, they cannot let go the idea. They have retained this and added the two spur streets branching out at oblique angles eastwards and westward, without seeing that they have thereby rendered their central entry into the Strand, at the end of the straight street, practically useless. With the spur streets added, the only value of the straight or central leg of the tripod would be for vehicles intending to stop at some of the houses between Wellington-street and St. Clement Danes, which certainly could not be a sufficient number to make a special approach 100 ft. wide for their benefit alone. Everything else, it is perfectly certain, would go up or down the spur streets, and the centre street, at this point, would be a desert.

This consideration is equally true for that portion of the traffic from the north which had to continue southwards over Waterloo Bridge: such traffic would take the line of the south-westerly spur street which would conduct it to the head of Waterloo Bridge; to encourage it to come straight down into the Strand behind St. Mary's, and then get to Waterloo Bridge along the Strand line, thus unnecessarily crowding that portion of the Strand, and taking two right angled turns where one oblique turn (down the spur street) would have sufficed, is absurd. In short, the Improvements Committee do not seem to see that by adding the two spur streets they have made the middle one, from the point of divergence, all but useless. The absurdity will be greater because the middle street, which the traffic will not use, will be the widest, and the two spur streets, which the traffic *will* use (for all traffic will go the shortest route) the narrower. It is a *reductio ad absurdum*. If this delta, as one may call it, of three streets is to be made, the spur streets ought to be treated as the main avenues, and made wider, and the centre street from the point of divergence kept narrower, and treated as what it really will become, a mere accommodation street for traffic going to houses in that part of the Strand, to save them the inconvenience of going down one of the spur streets and turning back again along that bit of the Strand to their destination.

It is to be hoped the Council will take this point into consideration, for otherwise they will find, when their triple-ended street is made, that they have made a street the lower 450 ft. of which is of no use to any one, except as a site for building frontages. The spur streets must be the principal ones; the traffic will make them so whether they are built so or not. The 100 ft. width should be continued from Holborn to the point of divergence of the spur streets, and the latter can diverge at a width of 90 ft. each.

This point is the more important, since we find—and it is indeed an agreeable surprise—that the Improvements Committee have been so far educated by the more enlightened part of public opinion that they seem to have accepted the idea of the ultimate necessity of a new bridge in connexion with the new street as a matter of probable requirement; and though they rightly observe that this question does not fall within their reference, they recognise its importance by the remark that they have "therefore" (*i.e.* because it is not within the scope of their Report) "thought it right to do no more than arrange that the line of the new street shal

be such as will easily lend itself to any possible future extension of the street by means of a bridge across the river." We beg to say that they have nothing of the kind: they have done exactly the contrary. If the new bridge is to be in a line with their main street, as seems to be their idea, they have left it so that the bridge scheme could not be carried out without pulling down St. Mary-le-Strand, which in other portions of the Report they have expressed themselves so exceedingly anxious to preserve! If the new bridge were to be at the end of the eastern spur street—which would be a much more fitting place for it, as dividing the distance more equally between Waterloo and Blackfriars Bridges—then their south-eastern spur street of 60 ft. wide is too narrow to form an adequate approach to it. In fact, their scheme as now proposed is a jumble of inconsistencies. The Committee are quite right, in principle, in urging that this much-needed improvement should no longer be delayed, but it must still be hoped that there will be delay enough to give a chance of a little more common sense being put into it. If the scheme is carried out as now proposed it will be a very big blunder.

The Improvements Committee, moreover, have not been without suggestions which might have shown them how to do better. Among the various schemes they have considered, most of them not worth very much, they have had one from the Institute of Architects which might have put them in the right way. The Institute appear to have recognised that the bifurcating or spur streets must be the principal ones, and suggest that the main road, down to the point of divergence should be 120 ft. wide, and the spur streets 100 ft. wide each; that St. Mary's is not a fitting object (seen sideways) to fill the vista at the end of a street, but that the triangular space included between the spur streets and the Strand would afford a grand site for a London County Hall, which could be specially designed so as to face the main street properly. This would be a public improvement worth carrying out, and would lead the main roads in the right direction, the one towards Waterloo Bridge, the other towards the point where a new bridge could be appropriately placed, without pulling down a church to make an approach to it; for the line could easily be adjusted so as to clear St. Clement Danes.

A reference to this latter church reminds us of one point in regard to the widening of the Strand and the removal of the Holywell-street block which has been a good deal overlooked. When people talk of the fine effect of the two churches seen together, as they would be after this clearance, they do not perhaps realise that St. Clement Danes stands at a considerable angle with St. Mary's, and that some adjustment of the northern line of the Strand frontage, when the new frontage was made, would be necessary in order to bring the two buildings into a harmonious composition. This could be done however, but it ought to be thought out and provided for before the new north line of the Strand frontage is set out, as it will be too late afterwards. The architectural effect of the two churches, and of the whole area, would be very much assisted by the scheme long since proposed by Mr. Brewer, of connecting the two churches by a garden, with the Strand roadway running on each side of it. This is also an idea which we hope will not be lost sight of.

THE WORKING MEN'S DWELLINGS BILL.

IT is unnecessary to say much on the Working Men's Dwellings Bill, which was read a second time last week by the House of Commons. The details of this measure are really quite uncertain till it has been considered by a Select Committee. The House of Commons has done no more than assent to the principle that loans may be made by local authorities to working men or persons whose income is less than a particular figure, on certain terms, for the purpose of buying the freehold or leasehold interest of a dwelling-house for the purposes of habitation. These terms and similar matters it will be the duty of a Select Committee to settle. At present the second reading of this measure by the House of Commons looks very like a piece of Parliamentary humbug. The occasion has been seized to display an apparent interest in working men, though members are fully aware that this Bill, if it becomes law, can have very little practical effect. It is obvious that public money can only be lent under proper safeguards, and after careful investigation. But if a thrifty artisan has a site, and can pay down at least a quarter of the cost of a house, he would probably be able to obtain the rest of the necessary funds from private individuals just as easily as from the Local Authority. At present not more than 150*l.* is to be advanced to one person, but if a man proposes to buy a small house at a cost of 300*l.*, he would have no difficulty in arranging for a loan of 150*l.* from some private sources; if he goes to the Local Authority he will have to submit to all kinds of irksome though necessary restrictions. Floods of clap-trap as to "thrift" and so forth were let loose by various Members of the House of Commons when the Bill was under discussion, and we are inclined to agree with Mr. John Burns, that the measure is "a vote-catching dodge," for specious though it seems it can have next to no practical result.

A few references to the text of the Bill will make this more obvious, though we repeat that the details of the measure are uncertain until it has been passed by the Select Committee. On the other hand, it is equally obvious that the Act must contain absolute safeguards against any loss of public funds. Let us take Sub-section 2 of Section 1: it runs as follows: "Before a Local Authority makes any such advance, it must be satisfied (*a*) that the workman actually resides, or *bonâ-fide* intends to reside in the dwelling-house in respect of which the advance is applied for; (*b*) that the title to the dwelling-house is good, that the sale is made in good faith, and that the price is reasonable; and (*c*) that the dwelling-house is in a sanitary and tenantable condition." An ordinary lender on the security of property makes no inquiries beyond those necessary for finding out if the property is a sufficient security for the loan which is required. But, as is evident from the above extract, the Local Authority must make much wider inquiries. The borrower is to reside in the house himself, and also, as is obvious, a Local Authority must not encourage the continuance of insanitary buildings. But when he has settled in his dwelling the owner will have nothing like the freedom of an occupier who has obtained his money from private sources. Thus, by Section 4, the house is to be held subject to the provision that it "shall not, except in accordance with rules under this Act, be sold, assigned, let, or sublet." Again, as every one knows, a private lender will over and over again give the borrower a little grace in regard to the payment of interest or of instalments. It is obvious that a local authority must act in accordance with strict rules. In fact, the whole transaction from beginning to end must be governed by inflexible directions. That the money may be advanced at a low rate of interest is clear, but this single advantage will be more than counterbalanced by the restrictions which will be necessary, and even in respect of interest it is doubtful, when the security is really good, whether in these days private lenders would ask for a much higher rate than the local authority. Of all people in the world, too, artisans with fluctuating wages are those who most need flexibility in regard to pecuniary transactions. So far, again, as regards the encouragement of thrift, it may be doubted whether the power to borrow tends in that direction. The best incentive to thrift is the desire to accumulate from wages such a sum as will in itself enable a person to purchase his dwelling-house out and out, and to become the owner of it free from restrictions of every kind.

NOTES.

THE passing of the resolution by the House of Commons on Tuesday last in favour of the opening of Government Museums and Picture Galleries on Sundays after six o'clock will, it is to be hoped, put an end to the controversy on this subject. Possibly this and previous debates may be regarded as of too much importance, since in all the large towns other than London the museums and galleries are under local control. Thus this vote does not effect one way or the other the opening of any except certain buildings in London. If these London buildings are opened it will certainly conduce to the order and observance of Sunday afternoon and evening, and those who have any conscientious objection to visiting them on this day need not do so. But public buildings such as the British Museum and the National Gallery should be open to those who wish to visit them on any day of the week. They are not the property of any sect or of any particular body of persons holding a particular set of opinions.

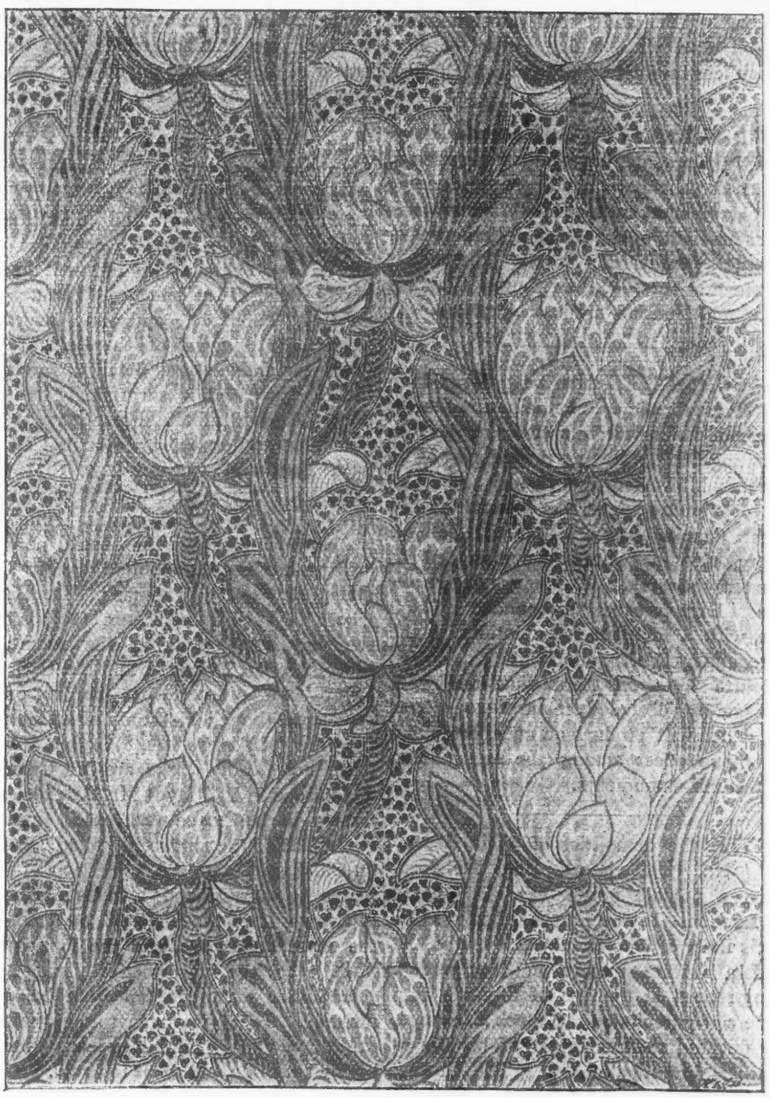
THE "annual report" of the fires in London again shows several minor improvements in its arrangements, which add to its value. Besides a description of the notable conflagrations, there are notes on all the fires in which lives have been endangered. During the year there were no less than 177 cases of this kind. It is only perhaps to be regretted that the notes are not more complete, especially as regards particulars of the class of building in which the risk was incurred; but as the scope of the brigade is unfortunately still limited to the *extinction* of fires, with little or no regard to

fire *prevention*, we cannot perhaps expect information which would assist in lessening the danger of the metropolis. It is true that there is the usual record of the causes of fires, but here again there are unfortunately 919 cases which are classified as "unknown," out of a total of 3,633. Last year there were 2,198 cases where causes were specified out of a total of 3,061. The most serious fire of the official year was in February, at the South-West India Docks, when 240 men with 38 engines and 4 floats were at work at once. The strain on the brigade in such an instance was, of course, most severe, large areas of the metropolis being left entirely unprotected, and we take the opportunity of again pointing out that unless the brigade is materially strengthened, it would be advisable to form a properly-trained reserve force to fall back upon in emergencies.

THE accident to the Great Northern express at Little Bytham on Saturday is stated to have been attributable, indirectly, to a desire on the part of the Company to carry out the recommendations of the Board of Trade Inspector. Major Marindin had certainly urged the Great Northern to relay the main line with 90-lb. per yard rails where old ones, originally 80 lb. per yard, were still doing service; and the line had just been relaid at the scene of last Saturday's catastrophe. More light will be thrown upon this at the inquiry, and also upon the far more important question as to whether proper steps had been taken to ascertain if the permanent way was really quite safe for the resumption of traffic. This seems somewhat doubtful, especially in view of the stormy weather and the natural action of excessive rain upon a freshly-laid track.

THE office of City Architect of Berlin, vacant recently by the resignation of Herr Blankenstein, has been filled up by the appointment of Herr Hoffmann, who received 104 votes out of 108, in the Municipal Council. The appointment is for twelve years at least, at a commencing salary of 600*l.*, which seems very inadequate for so important an office. Herr Hoffmann, who, it may be remembered, is the architect of the Imperial Law Courts at Berlin, illustrated in our last New Year's number, will probably however give increased importance and influence to the office, which will naturally be followed by a higher scale of remuneration. The new City Architect is a native of Darmstadt, where he studied at the Royal Technical College, completing his training at the Prussian Academy. He has been the recipient of a large number of decorations, including the Schinkel medal and Travelling Studentship.

THE "Société Centrale" of the French architects has been giving a grand banquet last week to M. Charles Garnier, its distinguished president, on the occasion of his promotion to the dignity of Grand Officer of the Legion of Honour. All the most notable personages of the French artistic world figured at the high table, and after the toast of the evening, proposed by M. Achille Hermant, Vice-President of the Société, M. Corroyer handed to M. Garnier the badge of the Legion of Honour. M. Rouyer, the present Director, and M. Larroumet, the former Director of the Department of Fine Arts, followed successively, and after a few words from M. Garnier, further speeches were made by M. Jacques Hermant, on behalf of the "Architectes Diplomés," M. Newham, President of the "Société des Architectes du Nord," and Mr. White, as representing the Royal Institute of British Architects. By way of commemorating the occasion, the Société Centrale has commissioned M. Chaplain, the well known medallist, to design a medal bearing the portrait of M. Charles Garnier.



The "De Morny" Wall Paper: Designed by Mr. Beresford Pite.

IN our issue for December we gave a report of a meeting of the Architectural Union Company, at which a resolution was carried that the company were not to let the galleries at 9, Conduit-street (occupied mainly by the Institute of Architects) for any trade purpose, "or to any tenants other than those mentioned in the company's share prospectus." Mr. C. F. J. Jennings gave notice that he should call a meeting to rescind the resolution, in which he has apparently succeeded, and we are informed that the Institute have abandoned the idea of instituting legal proceedings to restrain the company from letting the premises as they please. Apparently the wording of the original share prospectus was not so precise as to give ground for legal action, but there can be no sort of doubt that the Company was originally formed for the general purpose "of providing a building suitable for the different Societies connected with the art of architecture," and that it was morally bound to this programme. As the company has kicked over its moral obligations, we should suggest that it should at least change its title accordingly; it can have no longer any claim to call itself the "Architectural Union Company."

A NEW book of wall-paper designs issued by Messrs. Hayward & Son may be taken as an illustration, to some extent, of the recent tendency in wall paper design. This seems to run now a good deal in the direction of foliage of a comparatively naturalistic type, conventionally arranged. In the "Magnolia" design, by Mr. Belcher, even convention of arrangement, though it must exist in a certain sense to enable a paper to be printed at all, is masked as much as possible, and a naturalistic appearance given to the whole; and this is the case in one or two other designs in the book. We cannot say that we sympathise with this tendency; we prefer clean lines and pure convention in ornament. In the "De Morny" design, by Mr. Pite, of which we give an illustration, there is a union of the soft and semi-natural form of leaf with a more strictly conventional arrangement, and this design

is one of the best in the collection. Mr. Gwatkin's "Bell and Scroll" design is also a good one, with a fine sweep of line, though less original than the one illustrated.

MR. G. A. LAWSON, the sculptor, is, we understand, engaged on a series of statues for the new buildings surrounding the old Roman bath at Bath. They will represent eight of the Roman Emperors or Governors who were in Britain. The models for the first three—Julius Cæsar, Claudius Cæsar, and Hadrian, are just completed.

A COMMITTEE has been formed in Paris for the erection of a mosque for the use of Mahommedans either resident in or visiting Paris. Having invited two of its members, MM. Ambroise Baudry and Saladin, to submit designs, the Committee has almost unanimously selected that of M. Baudry, who has been commissioned to carry out the work. M. Baudry's design includes a large forecourt surrounded by high walls, with a fountain for ablutions in the centre, and a cloister round three sides. On the fourth side opens the mosque itself, with an elegantly designed minaret 40 mètres high, which will produce an unexpected and picturesque effect among the surrounding architectural monuments.

WITH the demolition of "The Grove," No. 37, Tavistock-place, Tavistock-square, a notable house has disappeared from London. It was purchased in 1825 by Francis Baily of Benjamin Oakley, who had added a private theatre in the garden. Having retired at the age of fifty-one from commercial pursuits on the Stock Exchange, Baily devoted the remainder of his life to scientifical investigations at "The Grove." He built for himself an observatory, and in a small room in the north-east angle, on the first floor,* carried out a long series of experiments, in succession to Cavendish, for computing the gross weight and average density of the earth, establishing the ellipticity of its shape, and the precise length of the seconds pendulum. These experiments lasted over twelve years. In 1843 Baily was awarded, for the second time, the gold medal of the Royal Astronomical Society, of which he was President at the time of his death in the following year. Here, too, Baily revised the star-catalogues, and, in 1829, formulated proposals for remodelling the Nautical Almanac. In the adjacent house, now "Burton House" (No. 17, Burton-street), lived his intimate friend, John Britton, who removed thither in 1820, and was residing there when he brought out his well-known works upon architectural and topographical antiquities in England, including the "Cathedrals" and "Public Buildings of London." It is stated that "The Grove" was occupied for a while by Sir John Herschel; also by Sir Matthew Digby Wyatt, Architect and Surveyor to the East India Company; and that the ground will be occupied by Mrs. Humphrey Ward's projected "Settlement."

THE exhibition of the Society of Painter-etchers at the Water-colour Society's rooms contains more than the usual proportion of pure etching and less than usual of mezzotint, aquatint, or of those highly worked line etchings which miss the real power of etching, and might just as well be engravings. At the top of the room is a collection of M. Helleu's remarkable dry-point etchings of figure subjects, and Mr. Slocombe shows in two or three studies, especially "On the Sea-shore" (221), a remarkable mastery of the difficulties of etching the nude figure in dry-point work. Mr. A. Haig exhibits two or three fine and highly finished architectural pictures from existing buildings, and an imaginative subject, "A Legend of the Bells" (25), in which the architectural detail, apparently in this case invented, is surprisingly weak and poor. Miss Elizabeth Piper may be complimented on her two architectural subjects from York and Chester (130, 163), which show a mastery of architectural drawing not often found in women's work. Among the works which illustrate the special powers of etching are those exhibited by Mr. Oliver Hall; Mr. Percy Thomas; Mr. Bassett, whose "On the Colne, Essex" (108) is one of the very best works in the room; Mr. Slocombe, Mr. Evershed, and Mr. Goff. Mr. Legros' works somewhat border on the grotesque, though his study of effect under the title "L'Averse" (148) is fine. Among other noteworthy works are Mr. Cameron's "Holyrood in '45" (179), Mr. Dalgleish's two figures in landscape (214, 218), and Mr. Robertson's little landscape called "Study of an Old Barn" (232). A collection of book-plates by various hands attracts a good deal of attention; of these No. 48, by Mr. Eve, is the most decorative, and the four by Mr. Martyn (50) the most poetically suggestive; some other examples fail from being too pictorial. There is much to enjoy in the exhibition, and something to learn from it—both what to do and what to avoid.

IN the fascinating collection of "pictures and drawings of imaginative landscape"* by Mr. Albert Goodwin, now to be seen at the Fine Art Society's Gallery, the artist, in some of what his friends call his "bogy pictures," has given us some very fine and poetic conceptions, as in "Christian and Faithful Entering Vanity Fair," "Heathendom," and "The City of Dis" (another design from that formerly seen at the Royal Academy). Still finer perhaps, though less sensational, are the class of drawings illustrating Rasselas and the Arabian Nights, one or two of which are splendid inventions in colour. Some of the studies of real scenes, however, quite dispute the palm with the ideal ones. The small drawing of the Taj Mahal seems the most beautiful representation of it we have seen in painting; the artist says, in the catalogue annotations, "As real as I could make it. When the real is so perfect there is no room for ideality." Architecture is largely represented among the realistic subjects, and Mr. Goodwin is one of the few painters who can really draw architecture well. In the effort after delicacy of colour effect the tone of some of these architectural scenes gets a little dreamy and unreal; but perhaps this was intended. Three drawings of Bamborough Castle under three different conditions of light, hung together, are very interesting and form a striking contrast. Altogether the exhibition is a charming one, and contains much that should be of special interest to architects.

THE third exhibition of the "Société International de Peinture et Sculpture" is open at the Georges Petit Gallery in Paris. Besides some excellent works by living artists, the collection includes some fine examples of the work of the late Bastien-Lepage, among them the "Potato-Harvest" and the portrait of Mdme. Sarah Bernhardt. At another Parisian exhibition, at the Durand Ruel Gallery, is an interesting collection of works by the late Mdme. Eugène Manet, who, under the name of "Berthe Morisot," acquired a considerable reputation as a painter of the Impressionist school.

THE small exhibition of etchings, silver points, and sketches in oil, by Mr. William Strang, on view the last week or two at Mr. Dunthorne's gallery, is a curious medley of etched portraits vigorous and coarse in style; etched landscapes which seem a wanton imitation of the effects of old work, oil sketches of figures and landscape devoid of all charm yet striking in their feeling for colour, and silver-point life-studies of the figure, slight but of great delicacy of execution. That the same artist could produce these and the leprous-looking etching from the "Ancient Mariner" (No. 41), shows versatility indeed, but of an ill-omened kind.

ON February 21 the Khedive opened the sixth exhibition of the "Cercle Artistique" at Cairo. The exhibition consisted of about two hundred works, oil and water-colours in about equal proportions, and some tapestries and other objects of art. French and Italian names predominate among the exhibitors; there are in fact only three English exhibitors — rather curious considering the position we at present occupy in Egypt; but English rulers and diplomatists and their retinue do not usually join artistic powers to their other accomplishments. Mr. Talbot Kelly has a fine drawing of "La Poste au Désert" (the catalogue is in French), with a remarkable effect of heat in the air on the sand; Mr. J. G. Rogers (Pasha) some excellent water-colour drawings of local scenes, and Mr. Warburton-Stent six fine water-colours of architectural subjects, including two of the Mosque at Boulak, and one of the Coptic Church in old Cairo.

SHORTLY after Easter the Fine Art Society will exhibit a large collection of Sir E. Burne-Jones's small studies for his larger pictures. Some of these have been seen occasionally, at various exhibitions, but there has never been any collective exhibition of them, and this one will be an interesting artistic event.

A PETITION has recently been sent in to the London County Council in regard to their attempts to brush down Hampstead Heath and make it neat and such as a County Council's Heath, in their idea, ought to be, by "cutting and burning old gorse bushes, filling hollows in paths with sand taken from banks and knolls," &c. We entirely concur in the opinion that the

* See views of this room and the house in "Things Not Generally Known," 1856.

* A rather oddly-expressed title, by the way. It is the artist, surely, who is "imaginative," not the landscapes.

more Hampstead Heath is let alone the better. The signatures to the petition include the names of Sir John Millais, Sir Walter Besant, the Rev. Alfred Ainger, the Rev. Dr. Martineau, Mr. Beerbohm Tree, and Mr. Rogers Field, so that it cannot be said that this is a mere sentimental grievance of artists and "æsthetes."

ROMANESQUE ARCHITECTURE.*

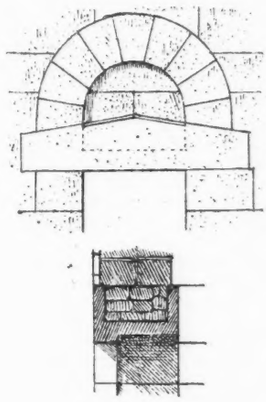
BY PROFESSOR AITCHISON, A.R.A.

LIKE the stories and fables of old times, the glimpses you have got of the new architecture of the barbarians should have its moral pointed out, or else the time spent in listening to what has been said, and looking at what has been shown, can at its best be only an innocent amusement; for, if nothing useful can be learnt, you probably could find other innocent diversions more to your taste; still I hope you have learnt something. You have seen that these various savages and barbarians, bringing nothing with them but courage and energy, have, in the course of six or seven centuries—say from the middle of the fifth to the middle of the twelfth century—learned how to erect vast and noble monuments in stone—monuments that, even in our refined days, excite admiration—an admiration, too, that is almost exclusively their own. There may be a want of proportion, a want of refinement, and a want of taste, about all but a few of the very last, that grate a little on one's nerves, but there is an originality, a look of superabundant strength, and a titanic grandeur about some of the interiors of their buildings that impress us with their having been built for great and extraordinary people. This originality and this greatness of soul is not confined to their architecture alone, though that is what you came to learn about, but pervades their language and metaphors. One of these metaphors I give you, as it always seemed to me peculiarly striking. When Edwin, the King of Northumbria, was converted by Paulinus in 628 A.D., he explained his conversion to the Witenagemote; to this explanation one of his warriors thus replied:—"You perhaps recollect, O King, what sometimes happens in the winter days when you are sitting at table with your captains and men-at-arms—that there is a good fire, and that your hall is well warmed, although it blows, rains, and snows outside. A little bird flies across the hall, coming in at one door and going out at the other. This instant of passing through is full of pleasantness, for it neither feels the rain nor the storm, but this moment is short, the bird has flown through in the twinkling of an eye, and from winter it has passed into winter again. Such seems to me the life of man on this earth; its course is a moment compared to the length of time that goes before and follows it. This time is gloomy and perplexing for us; it torments us by the impossibility of knowing it. If, then, this new doctrine can teach us something tolerably certain, we should follow it."

The savages and barbarians brought with them no architecture. Those from inland might possibly have been able to build a hut, a cart, or waggon. Those who came from islands and seashores must have been able to build boats and galleys; some of them possibly could weave wicker-work. We do not know whether their drinking-vessels were of wood, of leather, or of pottery, or whether they could weave wicker to hold fluids, like the milk-baskets of the Kaffirs; nor do we know what skill they had in the working of metals. Did they barter slaves and skins for iron weapons and tools, or did they make them? And if they made them, were they able to smelt iron, or only to work up what they found in a meteoric state?

Whatever part of the Roman Empire the barbarians over-ran, they found Roman or Byzantine buildings of marble, stone, brick, or rubble, and where these were roofed with timber they mostly burnt them down. When they wanted to build themselves, they must have got Roman or Byzantine architects and workmen.

It has been said that, in the present day, a merchant or an attorney might get a very good house built for himself without any architect being employed, as science, the graphic arts, and skilful workmanship are even more widely disseminated among the people than in the palmy days of Rome; but after the irruption of the barbarians all this had ceased. In how short a time we can see by Theodoric's Palace, built between 485 and 526. There must have been some kind of husbandry, and, I suppose, bakers, or the barbarians would probably have starved; probably leather-dressers, blacksmiths, and hedge carpenters, but the lay architect or skilled priest in out-of-the-way places had to teach his men how to burn lime properly, how to choose sand, and to make mortar; he had to have tools made, and to teach the workmen how to use them; he had not only to design the building and to set it out, but to see that the stone was properly worked, bonded, and set; to design the centering and see that it was properly worked, put together, and supported; not only that the trusses were properly designed, but that seasoned wood was used, that it was properly worked, that the joints were right, and the tenons were true and properly pinned, that it was hoisted and set, so that the ends did not rot; and, in short, to be architect, builder, and foreman to the building and fittings. Every monastery which expected to build had to see that there was wood and water, a quarry for stone and for lime on its domain. To give you an idea of the roads, there is a drawing of the lintel of a doorway to the belfry at



Ver, Calvados.

Ver, Calvados, that had been worked out by hand, leaving only a thin shell, evidently from the impossibility of getting a heavy stone over the roads; anything heavy that had to be fetched from a distance, had not only to be dragged by bullocks over bad roads, but had heavy tolls to pay to the lords through whose domains it went: the church or monastery it was wanted for, might be considered lucky if it was not stolen or confiscated.

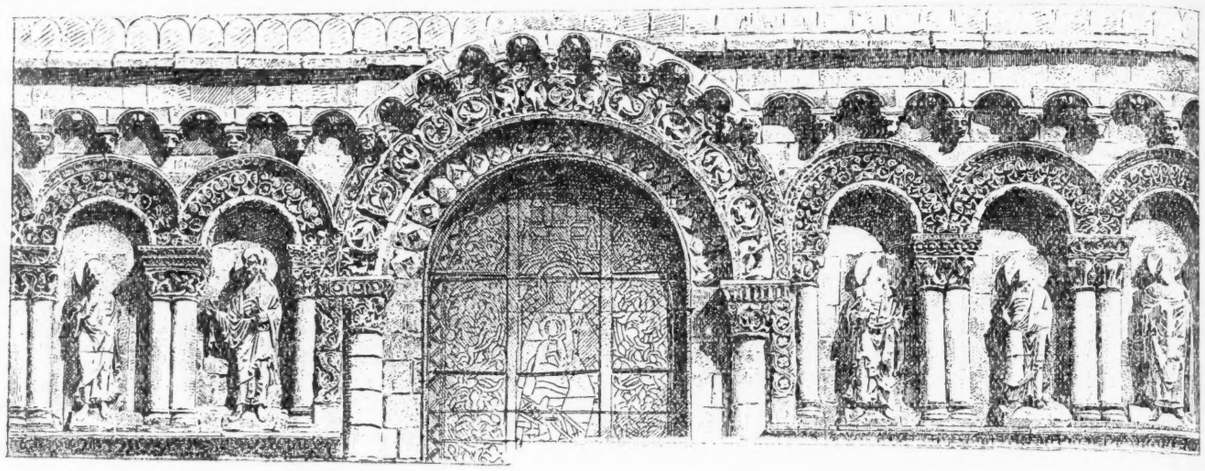
The architect could not send, as in Roman times or our own, to Egypt, to Algiers, to Tunis, to the centre of Asia Minor, or to the Greek Islands, for a porphyry, or marble monolithic shaft—nothing but absolute necessity made the architect get anything out of the domain. If the stone were hard, and the beds thick, he had to use it in as large blocks as could be carried and hoisted, and there was no gunpowder or dynamite then; if the bed of stone were thin, he had to use shallow stones; if the stone were porous and split with frost, he had to put in a damp course, and protect it from the rain by wide eaves: besides in Romanesque times they were always short of funds. So you see that the post of architect was no sinecure. It was useless for the architect to deplore that construction was forced on him, as the young architects do now, for if he could not construct there was no one else who could. I fear that a young architect, even if he had been articled for three years, and could sketch in perspective, would have cut a poor figure as architect to an Early Romanesque church in the country. To give you some notion of the varied knowledge and skill required, I may refer you to the treatise of Theophilus, a priest and monk, supposed to be of the eleventh century, on the various sumptuary arts used in completing churches for the services and for display. Recipes for making the various articles wanted are given by him, and show the vast number of attainments possessed by one man. He gives recipes for making pigments and ink, for making the glass furnace, the cooling and the dilating ovens, and the tools; for the making of white and coloured glass and mosaic; for the painting of earthenware, for the composing of windows, and for painting them; for casting the leadwork, and soldering the joints; for building the blacksmith's shop, and making the tools; for melting gold and silver, making chalices, pattenas, and for ornamenting them with niello; for the enamelling of the censor, for the making of its chains; for the working and gilding of copper, for the making of nails, for the making of organs. He writes, too, on bell founding, on the smelting of iron, and of damascening it; of carving ivory, of polishing gems, of setting precious stones, of writing in colours and gold, and on the finding of water. It seems incredible to us that any one man in the course of his life could acquire this varied knowledge and skill. When he gives these recipes to a friend, however, he points out how this varied knowledge was to be acquired, for he says, "I have not hesitated to convey to your virtuous disposition how much honour and perfection there is in avoiding indolence, and in contemning ignorance and sloth; and how sweet and agreeable it is to indulge in the exercise of divers usefulness, after the word of a certain author, who says:—'To know anything is praiseworthy; it is a fault to be unwilling to learn.' Nor let anyone be slow to understand him, concerning whom Solomon has said: 'He that increaseth knowledge increaseth labour,' because whoever carefully meditates may mark what perfection of mind and body may result from it."

We have followed the gradual elevation of the savages and barbarians from their original condition until they became skilful and accomplished architects. We may imagine, though we cannot see, the steps by which the architects arrived at a certain mastery of the art, how the advantages of practice with every difficulty to be overcome, the gradual increase of knowledge, and the better teaching acted and reacted upon them, while those invaluable lessons that are taught by failure were plentiful enough. The teaching was constantly improving, and the practice was constant. This combination gradually brought them to perfection, and enabled them to start another new style—Gothic, that then was and still is the admiration and wonder of the world. You must, too, recollect that in those days there was no science, daring was only driven into secure lines by failure, until at last the architects knew the bearing-powers of each sort of stone they used, as we know the catechism. In the countries occupied by the savages and barbarians, churches and monasteries were the signs to the people of all that was good and desirable. In the church the serfs heard words of brotherhood and hope, under its shadow they were free from the tyranny of their lords. In it they found all the higher delights; singing, music, splendid dresses, costly plate and jewelry, and brilliant illumination, besides the advantages of rest and shelter. There was also sure to be close to the church a monastery for its services, and here was to be found elementary and advanced schooling, as well as instruction in the common arts of life; the workers, too, on the church domain had comparative freedom from molestation; so it is not surprising that some of the peasants' hard-earned money or their labour was given to the building of their church and monastery. Even Renan says that perhaps the highest thing man could do in the Middle Ages was to sing psalms in a church. We can understand the passionate pilgrimages to Becket's tomb, who, from being a reveller and jester of the King's, had stood up against English civilisation being trampled out by brutal barons.

Byzantium, it must be remembered, was, up to a certain period, the centre of the arts, and then the Moslem empires or those of the West competed with it.

To about 700 the gold coin used in the dominion of the Caliphs was minted at Byzantium, and it was only at the latter end of Abd-al-Melik's reign that it was struck by the Caliph; in his son Welid's time, 705 to 715. The Byzantine Emperor presented to him mosaic and mosaic workers for the Mosque at Damascus; from the same source came the mosaic and the mosaic workers for the Mihrab at Cordova for Abd-el-Rahman, who died 787; and for Charlemagne's palace and chapel at Aix, about 795. After the election of Charlemagne, however, in 800 A.D., to be Emperor of the West, there was no great love of him at Constantinople. Charlemagne is supposed to have got some Saracen professors for his schools and colleges, and these were probably natural philosophers, mathematicians, and geometers, for these sciences were greatly affected by the Saracens; though I believe it was not till Mamun's time, 813-834, that Hindoo arithmetic and mathematics were published, Mohammed Ben Musa having in Mamun's time written his book on the solution of quadratic equations. We must also remember that Abbey Schools

* Being the sixth and last Royal Academy Lecture on Architecture this Session. Delivered on Monday evening, February 24, 1896.



Arcade, Notre Dame, Poitiers.—(From an illustration in "La Construction Moderne.")

had been started by St. Benedict between 497 and 542, and, in spite of outrages, such as the sacking and burning of Monte Cassino, by Agilulph, King of the Lombards, who reigned from 591 to 616, the overrunning of partly civilised countries by other barbarians, the burnings of towns and monasteries by pirates and raiders, and the despair of people in the tenth century. There was, late in the eleventh or early in the twelfth century, sufficient knowledge of stereotomy and stonecutting to work the stones of the domes at St. Front at Périgueux.

The great epochs after the irruption of the barbarians, were those of Charlemagne in the eighth century, and that of the first Crusade at the end of the eleventh century. There must have been military engineers with each army of the various nations going to the Crusades, most of whom were probably architects, for you recollect that Vitruvius says he was an inspector of artillery, and Anthemius, of Tralles, is believed to have been a military engineer. They saw all the principal buildings of Europe, Asia Minor, and Syria, on their way to Jerusalem, the glories of Rome, and probably those of Ravenna, of Constantinople, of Asia Minor, of Antioch, of Acre, and of Jerusalem, besides seeing the ruined cities of the Hauran. It is believed that some of the Crusaders learned more advanced geometry from the schools of Syria; for although there was some intercourse with the East by pilgrims to Jerusalem and by the transference of monks from all parts before the Crusades, the European traffic to the ports of Syria, and the Holy Land must have been enormously greater during its partial holding by the Christians, until they were driven out of Acre in 1291. In the great eleventh century, besides the conquest of England, and the Crusades, the birth of Abelard (1079-1142) took place; who, though he is thought nothing of now, made a great sensation in his time, and it is supposed to be owing to the rationalism he taught that architecture became so logical.

Although the main sources of Romanesque were Byzantine or Roman, yet as it proceeded it was greatly influenced by the likings of the various barbarians and by hints culled from all parts of the world; to separate these sources would be like Psyche's task with the mixed heap of seeds and grain, without the assistance of the friendly ants. By the middle of the twelfth century the architects had pretty well mastered their problems. We should, however, consider how great a task they had to encounter.

At least up to the end of Charlemagne's time, new buildings were ordered to be built after the Roman manner, although the western part of the Roman Empire had been severed and destroyed, and wealth was necessarily rare. The elaborate organisation of the Romans had gone, and has not returned up to the present day; probably few men of great skill were left, roads had been broken up, the country was parcelled out into feudal domains, mostly at war with one another, not only was learning and technical knowledge destroyed, but the bulk of books and treatises as well. Only here and there in remote places, and generally but for a short time, were there even safe and calm retreats. The thunders of the Pope had no terror for piratical or raiding heathens. Not to speak of local wars, the great feudatories occasionally caused monasteries to be plundered and burnt, for not only was constant imitation caused by the rival claims and conflicting powers of the great lords and the clergy, but monasteries alone were worth plundering, as order, intelligence, constant industry and hoarding can alone accumulate wealth; and yet even during these troublous times, the shifts of determined men to build with the materials at hand had sharpened their wits, and in the twelfth century the inroads of fresh savages into the west of Europe had practically ceased. The earlier barbarians having settled down, having possessions and defences, made raiding much more perilous, the raiders meeting with determined resistance; and, consequently, had much less chance of plunder. Fire was the greatest enemy the churches and great establishments had to encounter, and this was not only due to intentional fire-raising by pirates and raiders, but by lightning, by riots, and by accident, for the houses and hovels of towns and villages were mostly composed of wood, and thatched or shingled. The early Romanesque architects were, it is said, so ignorant that they did not know that vaults had thrusts, so that many vaults fell down from the want of adequate abutments. Every device was tried in the way of buttresses without success. Long timbers were even built into the middle of the wall to carry the thrust of the barrel vault from buttress to buttress, but such timbers, built in without ventilation, soon rotted, and the vaults were ruined or fell. Insufficient iron ties across the nave were used, with a similar want of success, until the problem was solved by making the nave narrow, and by abutting the thrust of its barrel vault by a half-barrel vault over the triforium, as at St. Paul, Issoire, and elsewhere.

Early in the twelfth century, the Byzantine dome was introduced at St. Front, Périgueux. This was a church copy of the Holy Apostles at Constantinople in plan and arrangement, or a copy of its copy, St. Mark's at Venice. Such domes were, however, found to be too costly on account of the large size of the abutments, and the labour in working the stonework of the cupolas. This latter difficulty, according to M. Corroyer, was eventually got over by using ribs to partly support a thin cupola, which was the first introduction of the ribbed vault. The best marked instance of this is at St. Avit the Elder, believed to have been built at the end of the eleventh century and vaulted then, or early in the twelfth century. We may, however, adopt Viollet-le-Duc's theory, that ribbed vaults were suggested by the parasitic ribs used for ornament at Vezelay and elsewhere. We may, consequently, believe that St. Ambrose, Milan, was not vaulted till the twelfth century. Durham was not vaulted until 1150 A.D.

Directly pointed vaulting with ribs was discovered, every space, however irregular, could be vaulted. The invention of the flying buttress completed the apparatus for introducing tall clearstory windows above the aisles in vaulted naves.

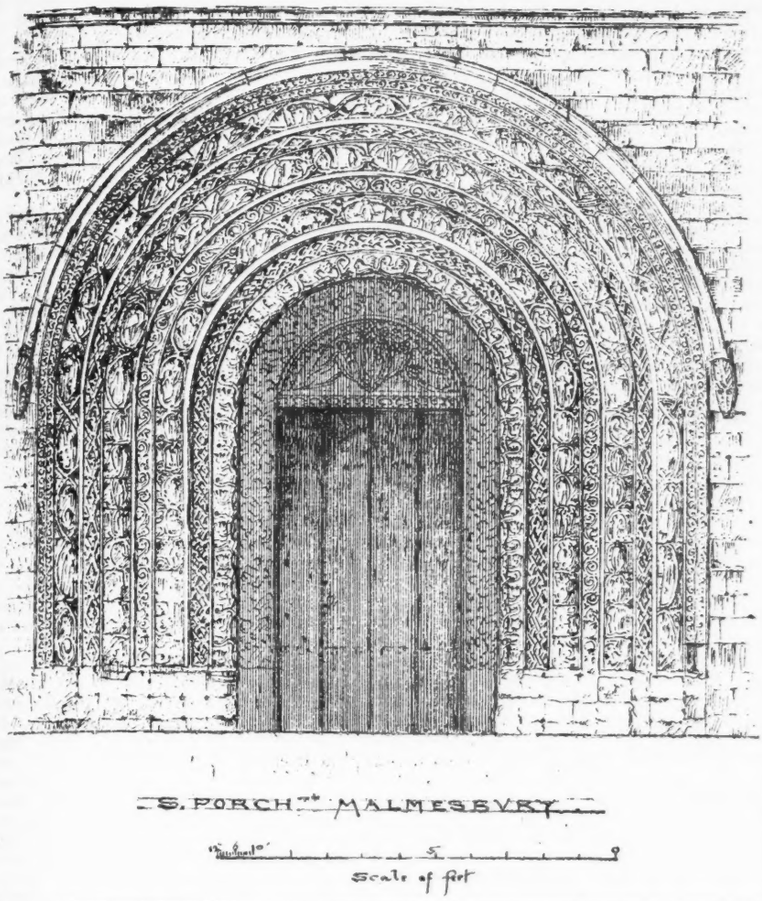
The architects of the middle of the twelfth century had become severely logical, and, while admitting that a continuous half-barrel vault abutted a whole one, did not see the use of this half vault being continuous, when the main vault was groined, as all the thrust was then concentrated at the meeting of the transverse and diagonal ribs.

The germ of the flying buttress is found at Durham, and at the Abbaye-aux-Dames at Caen, but these are under the roofs of the aisles. The first appearance of the flying buttress outside was, I believe, at St. Remi, at Reims; some at Vezelay are early, and that at Soissons was after the emergence of Gothic.

To return to the architects, they had to build their churches to meet the last alteration in the Ritual, to be safe from fire, to be an improvement on the last one built in impressiveness, originality, or elegance. In the 12th century the architects had begun to think for themselves in the cases of mouldings and foliage. We see that the architects had been continuously trained both in the theoretical and practical side of their calling through six centuries, and they were mainly employed in building churches, chapels, and fortified places, and some approach to perfection resulted. Genius apart, it is the continuous training of the French architects in theory and practice since the days of Louis XIV. that has made them the best in the world.

I think there is no doubt that an important building of the twelfth century—say, Durham, San Ambrogio, or San Michele, Pavia—is of a distinctly different style to the Basilica of Maxentius at Rome, or to Sta. Sophia, at Constantinople, and that almost every feature of Roman or Byzantine architecture had undergone a change; the arches had become stepped and moulded, the simple circular shafts had mostly become moulded piers, or when they remained they were covered with scales, chevronned, or spirally fluted, or they were made polygonal, with each face ornamented. Churches had been securely vaulted, and although there was no span equal to that of one of the great halls of the Roman Thermæ, nor to the Basilica of Maxentius; the greatness of the feat is all on the side of the Romanesque architects, who discovered a more perfect system of counterpoise, by which enormous abutments were saved, and found that vaults of a few inches in thickness would answer the purpose, instead of vaults 5 ft. or 6 ft. thick, and walls of 20 ft.; and be it remembered that Rome's Imperial treasury was filled with the taxes of the civilised world, while the Romanesque sources were the slender revenues of a petty province, the savings of a diocese or an abbey, and voluntary contributions. The æsthetic desires were met in Romanesque, as in all true architecture, by forms that pleased and satisfied the taste of the day.

In the earliest times of Romanesque, and at the latest, the architects are believed to have been laymen, but in the intermediate times they were the clergy, doubtless picked out from the most promising in the schools then sent to work as mechanics, and then to overlook as foremen the churches, chapels, and monasteries being built by the Mother Abbey. The ultimate reward was to be paid to these architects in the next world; but the office naturally conferred some personal power, and evoked a certain amount of admiration. If the building was successful it was to the honour of the architect's abbey or his order; the office gave the fullest exercise to his highest faculties, and was the most benevolent work he could be employed on, for the church was everything to the people—it was their theatre, their concert-room; in it their visions of splendour and beatitude were cherished; in its carvings they learned what little of history they knew, both scriptural and profane; it was their book of natural history, both animal and vegetable; and though the service was in an unknown tongue, to endure it was one of the ways to heaven. The gloom and the mystery of the church, and what looked like superhuman skill in its construction, made the architecture the most



important element in producing the desired impression, for churches were gradually perfected in impressiveness by experience. There is nothing of the sort now. Science is the nearest approach to former theology, and is looked on by some as the real theology; but it does not want its discoveries embodied for the people to understand them.

There are two other striking passions of the day—the worship of mammon and of good living. The worshippers of mammon do not want temples; but the eating-rooms of hotels are now the nearest approach to temples we have—and few palaces are so gorgeous

The study of Romanesque seems to me fraught with usefulness, for it not only shows us how the architecture that succeeded to the Roman and Byzantine got a new character, but started the methods of modern architecture. The various phases of Romanesque, too, are full of fruitful hints.

In the first place, it shows us how a few architects, with a small knowledge of anything beyond the merest elements and traditions of building, but of great mental power and energy, were enabled, with the help of the perfectly ignorant population, to build the sorts of buildings that were then wanted, and how these architects, or their successors, learnt the most valuable lessons from their own failures. How the Abbey Schools gradually trained the population within their reach in technical methods, and how a superior technical education in these schools made those adapted for it more and more fitted for the position of architects. How the spread of geometry, calculation, and strict reasoning, enabled them to use the materials they had to the best purpose; while constant practice, observation, thought, and striving at last enabled them to solve the problem of vaulting wide spans, of well lighting naves, and of giving an impressive appearance to the buildings they erected to the glory of God.

Among the other benefits they conferred is the raising of mouldings out of debased forms into elegant profiles, and the rediscovery of the way to design them—*i.e.*, so as to make them effective by the light at their command, and in the climate they were used. This art is now overlooked or lost, but fortunately it is recoverable. Their buildings were also enriched by the aid of the best sculptors they could meet with or create, and they showed how new floral sculpture might be made from the plants and flowers they knew and loved. It is well to recognise that Romanesque architecture was on a completely new scheme from the Roman; although at the Renaissance, people were foolish enough to suppose that they were copying the Roman method. A moment's thought would show that this method was impossible when the Roman Empire was destroyed, and could never be employed until a new despotism should again engulf the civilised nations of the world, and a highly organised centralisation be created, in which excellent roads, bridges, and means of communication were provided, so that money, food, and appliances for enormous masses of men could be rapidly collected and stored, and a system of building be devised which could be rapidly executed by armies of unskilled slaves, of soldiers, or of the rural population. It has been well said that Roman building was run or cast; while the theory, at least, of modern architecture is that it consists in the most frugal arrangement of materials, worked and put together by skilled and intelligent men with the least quantity of unskilled labour; that the buildings are designed to perfectly fulfil the requirements, excite the proper emotions, and appeal to the æsthetic cultivation of the day.

We hope that by following out the methods of the Romanesque architects, we may succeed in creating an architecture worthy of us, and of as marked and perfect a character as that of the best ages; but this can never come about until we follow their methods, and one of these is the giving of a complete architectural education. No such means of education exist at present, unless, indeed, we may say it has been begun by the Architectural Association. The older schools are the Renaissance schools, and carry out Mr. Ruskin's celebrated dictum that there are only two fine arts—painting and sculpture. Architecture is the art of creating perfect organisms that outwardly express their functions, and can only be brought to life again by the study of geometry, planning, and construction, of form, proportion, and light and shade. Architecture has nothing in common with painting or sculpture, but its beauty and interest can be enormously increased by a judicious marriage with both. When we get such a body of thoroughly-trained architects as existed in the twelfth century and through the Middle Ages, we may hope to gradually evolve a style as original as Gothic, and much more perfect, provided always that there be as ample a demand for monuments and for as transcendental a purpose. We have materials of a hundred times as great a power as any that the Gothic architects possessed, and I suppose a thousand times as much wealth; all that we lack is the nobility of soul and lofty ideals of these savages and barbarians. It is only by single-eyed devotion, the most perfect courage, and the highest aspiration, that great achievements are compassed, but I fancy that we are on the road. The sybarite and the worshipper of wealth laugh to scorn the idea that the fine arts can ever flourish again, as they have done in the past, but those whose eyes are on the spit, the wine cask, and the gold reef, are likely to take small heed of the morning star. Great and terrible emotions, ending in victory, produce a sudden burst of excellence in those fine arts which a nation cherishes. The marvellous victories of the Greeks over the Persians, gave Greece her masterpieces in eloquence, in poetry, in sculpture, and in architecture; the conversion of the barbarians to Christianity and the successful crusades, the Gothic churches. If any country is wrongfully assailed by all the world, and successful resistance should crown her efforts, we may expect that all the fine arts she cherished would then burst into blossom. In case such a coalition should ever be directed against England, and she should emerge victorious from the struggle, let us hope that all the fine arts she cherishes may burst into fuller bloom. Let it be our task to see that the great master art of architecture, which not only calls for such vast and diverse capacities, but which alone rears enduring monuments on the soil of its native country, to proclaim the greatness and cultivation of the nation, may be ready to flourish and to blossom with the rest.*

THE ARCHITECTURAL ASSOCIATION:

MASONRY.

THE ordinary fortnightly meeting of this Association was held on the 6th inst. in the Meeting-room of the Royal Institute of British Architects, Mr. W. D. Caröe (President) in the chair.

A vote of thanks was passed to Messrs. Balfour & Turner for permitting the members to visit the house in Park-lane at the corner of Aldford-street. A similar compliment was paid to Mr. W. T. Stephens for allowing the members to visit the new Claridge's Hotel in Brook-street, Grosvenor-square.

Mr. Hervey Flint then read the following paper on "Masonry" (Practical Stone-work):—

In entering on the task of submitting to you a paper on "Masonry," I would at the outset ask your indulgence, feeling, as I do, that I have accepted no light work. Masonry is a craft that is associated with things so vast, its antiquity so great, that the few things that I would say come from me with a keen sense of my incapacity for speaking on a work that carries us back to ages even before the Christian era; and speaking of the vastness of masonry recalls to one's mind the ancient Pyramids of Egypt, with their huge blocks piled one upon another with their almost imperceptible joints, and the gigantic obelisks and columns of that country hoisted on end, showing us that the mason at that early period knew the art of selecting, in the first place, a lasting stone; in the second, of raising enormous weights, and in the third, of fixing, as I have said, to such a nicety, that, though ages have gone since these stones were set, they still stand a witness, testifying that a stone "well and truly laid" should last for ever. Then, again, I do say for the mason, that he can lay claim to be one of the oldest, if not *the* oldest of all craftsmen, for we can point to some of the most ancient and most beautiful works that exist, and to show the antiquity of these works, I would quote Josephus, who says that 8,000 men were employed in the erection of Solomon's Temple, which was built of white stone. "The whole structure was of polished stone, and put together with such art that no joint was to be seen; in fact, the entire material seemed as naturally united together, seeming to be more the work of Providence and Nature than the production of art or human invention."

In dealing more especially with our own country I would call your attention to the fact, that the Briton has, from a date as early as the third century, been in great demand as a craftsman, for by that era he had acquired from the Romans the use of tools, cements, mortars, &c., and when the Emperor Constantius rebuilt the city of Autun in Gaul, he found his workmen chiefly in Britain.

* The lecturer's mention of his obligation to Professor R. Smith and Mr. Phené Spiers for the loan of diagrams was received with acclamation.

As I have said, the Romans taught the mason, but he was taught in perhaps an extravagant way. Some of their walls were 12 ft. thick, consequently requiring a substantial foundation.

Speaking of foundations reminds one of the necessity for a substantial footing for our buildings. For instance, in the year A.D. 969, a church had been erected at Ramsey with two towers. Shortly after the church was finished, a settlement occurred in the foundations that threatened destruction, and the whole had to be taken down.

It is interesting to know that in Mediæval times both the great and the humble contributed to the building of these monastic institutions—one gave the land, another bought the stone, others supplied the wheels for hoisting; their work went on from year to year; in fact, they seemed to have no idea of finality. When a building was to all intents and purposes finished, some part was found to be still wanting. Architect and builder followed architect and builder with transition of style, and thus it is we find in our cathedrals and churches masonry of all periods. It occurs to me that during all this transition the architect and artisan were more associated than at the present time. That they are not now so closely associated is to be deplored, but I am pleased to say they are on a fair road to what I might call a reunion, as shown by your President's address at the inaugural meeting of your Association a few months back; and I feel sure that if the two bodies could meet and discuss each other's wants and methods, it would, to say the least, be conducive to better work. But I was asked to say something on practical work, and, to be practical, our first consideration in the erection of our buildings is that they shall combine beauty of design with stability and utility. The item that the mason is called upon to assist you in is stability. Stability should be the aim of the architect, but in stonework is this always attained? We have had, during the last few years, splendid buildings erected, but after a winter or two, we find the stone decaying, sometimes even members of a cornice, for instance, disappearing altogether—weathered away. What is the reason? Is it that we have no stone to stand the weather? I say no, but I do say that enough consideration is not given to the selection of a suitable stone for building purposes. With a thorough appreciation of artistic tastes, love of colour, and fascinating details, I do ask you to take a lesson by what has gone before, in the shape of building-stones. Take that noble pile, the Houses of Parliament. Here was a commission of inquiry appointed of the most scientific men of the day, whose business should be to determine the most suitable and proper stone for that gigantic building. What was the result? Why, after travelling all over England, it was found that the stone from the Church Anston and Bolsover Moor quarries possessed all the qualities required by science to form a good building stone; and, further, that the old minster of Southwell, in the immediate neighbourhood, dating back to the Norman period, was built of this stone, the mouldings and chisel marks being in almost a perfect state. It was also shown that the quarries possessed enough stone to complete the work, which was, of course, in itself a great factor. You all know the one great mistake that was made: the atmospheric influences of the Metropolis, compared with Mansfield or Anston, are of a totally different character; and selecting a stone for Southwell is one thing, and doing the same for smoky, sulphurous London another. Hence the continual restoration that goes on on a building that should have proved an architectural bulwark of the nation. It is a great mistake to take only the state of buildings in the neighbourhood of quarries when selecting stone for a different part of the country, the climatic changes in the atmosphere being quite adverse the one to the other.

Our first building material undoubtedly is granite. It is practically imperishable, as evinced by our own Cleopatra's Needle, Waterloo Bridge, built in 1817, Duke of York's Column, 1830. The success of granite as a building material is when it is polished. If all our buildings were of polished granite, what a change from our dirty grimy streets; but like all other building materials granite requires attention in the shape of cleaning. I am glad to see its use adopted, to a great extent, by our City banks, and hope their example will lead other companies to adopt its use. Even granite, I say, requires to be kept clean, but the examples which we possess have often the appearance of neglect. This is a great pity, as the occasional use of the hose would remedy this evil; the colours would be fetched out, and the columns and pilasters glisten in the sunshine, instead of having a dirty-grey, sooty appearance.

Marble as an external building material has not proved a very great success, but I believe, with care, marble can be selected to assist you when you require colour, such as panels, &c. The new balustrade round the Athenæum Club is a fair specimen of this kind of work, and has proved a success.

Coming to the general building-stones, several specimens of which are laying on the table, the one standing out in the most predominant manner is that from the Isle of Portland. As an exterior building-stone it has proved itself more than capable to cope with the influences of our climate. Since the time of the Great Fire of London in 1666 Portland stone has been the staple material for building purposes, and it is noteworthy to mention that only one other stone, and that Roche Abbey, was mentioned by Sir Christopher Wren, as an alternative to Portland stone, for the material he wished to use in the construction of his masterpiece, St. Paul's Cathedral. Sir Christopher must surely have had a great opinion of this stone, but he tempered his opinion with wisdom, inasmuch as he caused all the stone to go through a seasoning process before using, for a term of at least three years, so getting all the quarry damp out, and thus working up at the first onset a substantial stone. I venture to say that if we followed this example, we should have far more satisfactory work for this reason. Stone worked directly it is heaved from the quarry, with all the sap in it, yields itself far easier to the tools. It is worked at a great saving in comparison to seasoned stone, and is, therefore, sought for by the mason; and in support of this I would say that if a mason has a stone to work which is really dry, that is seasoned, he applies water to make it "work easier." That water might saturate it half an inch or so, and thus is not detrimental to its lasting power. It is quite a different moisture to quarry dampness, quite an artificial dampness so to say; therefore, before you use a stone for building purposes, see that it is properly seasoned.

You will notice that I have prepared a diagram of the Weston quarries at Portland, and if you look at the photographs of the actual quarries I think you will find them of interest, as they show really the means of obtaining the stone, and also to what extent labour, in the shape of removing useless material, so far as we are concerned, is required before the quarryman can get at the actual building stone.

The two beds of Portland stone that we are mostly associated with are the Whitbed and the Basebed. The former is by far the most durable for exterior work, and is commonly called Brown Portland. Portland stone is an oolitic, calcareous freestone, its particles resembling the small eggs or roe of fish (hence the word "oolitic," meaning eggstone). These formations, when the stone is broken, can readily be distinguished by the aid of a magnifying-glass—in fact, often by the naked eye. In selecting a good lasting stone these particles should be well defined; the cementing properties between each particle should be very clean; there should be no powdery or earthy matter.

If you will examine those two specimens of Brown Portland, you will follow my meaning: one is powdery, the other clean. Generally speaking, good and bad stone in Portland may easily be distinguished by the sound of a block. If it is slung up, clear in its own weight, and a sharp blow be given by any hard material, the sound should be clear and crisp. If in selecting stone this result is obtained, one may invariably depend, not only on having obtained a lasting stone, but one that will turn out free from the old stereotyped quantities' phrase, "free from all flaws, shakes, and other defects." But if you should get a stone that sounds dull and stifled, then one can rest assured that it contains either one or other of the defects that we are anxious to obviate.

Turning to Basebed Portland, commonly known in the trade as Bestbed, this is not easily distinguished from Whitbed, the colour and general appearance of the two being almost identical; but if you call in the aid of a glass you will at once see that it is more uniform in structure, and has less of the shelly matter; consequently it is more difficult to say which is its natural bed, as its oolitic formation is scarcely observable.

Basebed Portland is an excellent stone for sheltered positions, as it can be worked up into fine detail and to a fine finish, and also at a less cost than Whitbed; but for exposed positions it should not be tolerated.

The third specimen of Portland stone is what is known as the Old Purbeck Portland. It comes from Swanage, Dorsetshire. I believe this stone was much sought after in olden times, being very superior and durable. It is specially adapted for such work as staircases, pavements, &c., as it is of a very tough nature. I might add that the Law Life Assurance Office, 187, Fleet-street, was built of this material in 1854. The balustrade round two sides of the Athenæum Club, with panels of Irish green marble, is also out of this stone.

Ketton Stone is one of the best weather stones we have, but is one that is rather neglected by the architect. The oolitic formation of this stone is very perceptible. We have examples of it at St. Dunstan's Church, Fleet-street, St. Pancras Station, and I was much impressed recently on a visit to the Jews' cemetery at Willesden, by a large balustrade, full of good detail, round Baron Rothschild's enclosure. It has been standing some twenty-five years, and is in a perfect condition; the carvings and arisses are as sharp as when executed. The labour to Ketton Stone is rather less than to Basebed Portland. I would strongly commend this stone, as it combines the essentials of durability with a nice warm colour.

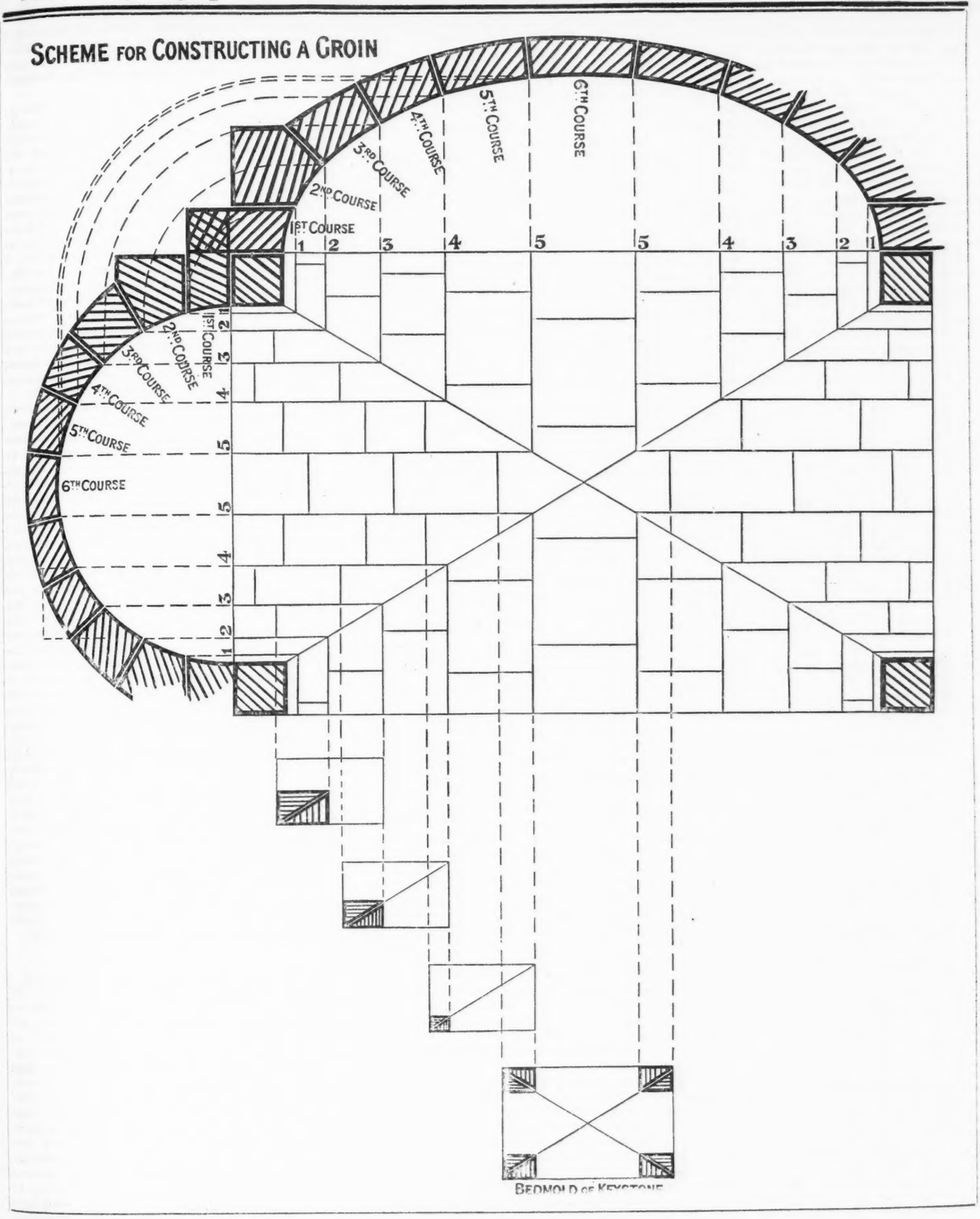
The softer freestones, such as Monks Park, Ham Hill, Box Ground, Corsham Down, Stoke Ground, and others, specimens of which are before you, should especially be subjected to the seasoning process. Doulting stone is one of the best of the softer stones for weather purposes, but it will not take small detail, being of a very coarse nature.

All stone should be clean in appearance, and, I need hardly add, lay on its natural bed. Columns or pilasters, for instance, that have any weight to carry, should be in courses. If built in one, "end on," to use a general phrase, the bed lines should be as nearly as possible perpendicular. If otherwise, the stone has a tendency to split with the weight, especially should the stone be of a very laminated quality, such as Corsehill, Ham Hill, and the like. All faces should be accurately true, beds perfectly square from the face and worked free from holes; every hole below the general surface of the bed lessens its crushing weight. It is far better in a large bed of a pier-stone, for instance, that it should be inclined to roundness rather than to hollow; hollow beds throw all the superincumbent weight on the outer edges, and will consequently cause fractures on the faces.

I would suggest that all stonework be left from the chisel and not "rubbed." A chiselled face, properly executed, is far preferable to that rubbed with coarse sand, which leaves all the pores of the stone open. If a stone is roughly chiselled with a dull tool, viz., a blunt chisel, the face is not cut but literally stunned off; add to this if it be rubbed with coarse sand, that stone will for a certainty weather in considerably less time than if it had been properly chiselled; and when I say chiselled, I mean cleanly cut with a sharp tool. Then, should you prefer it rubbed to a face, let it be so; but use fine sand, so that the face will be left to a fineness that will close the pores, and as this fine face quickly hardens, on no consideration should it be disturbed. Speaking of chiselled faces I would say that the old Saxon walls brought to light in the crypt of York Minster retain the tool-marks, which are almost as sharp as when first cut, and it is very interesting to trace the individuality of the workman by those chisel marks. In this work you can also trace the mason's marks, clearly indicated, not on the beds as is usual now, but on the exposed faces; a treatment that would hardly find favour with the architect of the present day. I have a small collection of "banker-marks," the forms of which are singular. Soft oolitic freestones should be finished with a fine face and not left from the coarse drag, as is very general, but which has the same effect as coarse sand has to the harder materials.

The art of building in stonework is, I take it, that every stone has a purpose to perform, a weight to carry: therefore, avoid all sham jointing. The more joints the better, and the less liability to fracture should any settlement occur. That this is the case is shown by many of the long stones in the window-heads of our buildings, which are often in one length, many of which are broken. This would not be so if these heads were jointed with splayed joints. Vertical joints, in any head spanning a clear opening, are quite out of order and should not be permitted, being quite contrary to all rules of masonry.

In building, work should be so arranged that each stone should take its equal share of the weight to be carried. This can only be obtained by the work being properly coursed. "Jumps" should be avoided—all beds should be level. I know of


SCHEME FOR CONSTRUCTING A GROIN
1ST COURSE
2ND COURSE
3RD COURSE
4TH COURSE
5TH COURSE
6TH COURSE
1 2 3 4 5 5 4 3 2 1
1 2 3 4 5 5 4 3 2 1
BEDMOLD OF KEYSTONE

no greater weakness, constructionally, than notched beds. Take the springers to a groined ceiling. These are generally worked with a horizontal bed up to such a height as to where the ribs clear themselves one from the other. Sometimes we find them drawn with radiating beds all through. This I think a mistake, as in this case you are apt to get a continuity of sunk and notched beds, and the whole weight of the ceiling being distributed over the ribs on to the springers, consequently the greatest strain is at that point. It therefore goes without saying that at that point there should be nothing but strength. I have a couple of models of vaulting work executed by two of my students at the Carpenters' Company Trades Training School, Great Titchfield-street, W. The fan vault is a model of a section of the Cloisters at Gloucester Cathedral. They are coursed, as you will see, with horizontal beds, and are fair specimens of what can be attained in masonry.

Walls made out with brickwork or concrete should be brought up course by course; the stone should be well bonded, the greater the number of thorough bonds the better. The filling in material should be strictly level, so that the succeeding courses may take a perfectly true bearing right through, not more on the stone facing than on the wall filling in. Each stone should be well bedded in an admixture of lime putty, gauged up in the proportion of three parts stone dust to one of lime, adding one quart of liquid Portland cement to every hundredweight of putty. All joints should be joggled and dowelled with square slate dowels. Pebbles are often used for economy, but being round they lose a great deal of the resisting power that the square dowel retains. Each joint to make good work must be run with cement and clean sharp sand, the stones being previously well saturated with water, or the dry stone will absorb all the moisture from the cement, leaving the "grouting in" material in quite a powder and consequently useless condition. All stone, to make satisfactory fixing, must be well saturated. Stone fixed in positions requiring great strength should be well cramped or dowelled together with copper or slate dowels. These dowels should be slightly dovetailed; if overdone it is conducive to weakness rather than strength. Avoid iron in fixing. Portland cement and iron work well together; but really for cramping, or such work as that, iron has no recommendation; for look at the Banqueting Hall, Whitehall, or the Horse Guards' Barracks at the same place. If you will examine the large fractures in the faces of the stonework you will have no difficulty in satisfying yourselves that the factor is the iron cramp.

Now, when we come to interior work, a new field is open to us. We are not bound by influences such as those that have been under our consideration. What we have to conside; primarily is, strength of material for its purpose secondly, its adaptability; thirdly, and generally to the client the most important, its appearance when finished. With all due respect

to your President's opinions, I, if I followed my own inclinations, should give marble the premier place as an internal material. Doubtless a number would say that marble is out of the question for general purposes, its cost is so great; but marble does not in itself ask for a treatment such as you give to stone. Work executed in marble can, and should be finished so as not to have any appearance of grimness or even of dinginess.

Marble should not be looked upon as a constructional, but rather as a decorative material, and looking at its use from a monetary point of view, I would quote Mr. W. Brindley's paper before the Royal Institute of British Architects some two or three years back, where he tells us that, "at St. Sophia 2,000 ft. super of delightful decoration of a durable character was cut out of single block of Cippolino marble, the whole opened out and making a continuous pattern." The small slab we have here is of the same material, and is a scale pattern of the pavement in St. Mark's, Venice. Then, again, to adapt marble to concave or convex surfaces, I would ask you to visit the church lately erected by Dr. Freshfield at Lower Kingswood. You will find that we have followed out the scheme of the Byzantines, viz., forming the convex face of the apse with a series of narrow slabs opened out Chevron fashion, thus producing quite a curtain-like appearance, which has a very pleasing effect. To save work such as this, in fact, all slab work, from having the appearance we find in some churches, and what your President rightly deprecates, several things have to be considered; for instance, if the walls are built of mortar, the sand of which is Thames sand, so called—but if that sand comes from the mouth of the Thames, that constitutes sea sand—consequently you will get that dampness and efflorescence that is usual with that kind of mortar, the walls being "cased" with marble the salt naturally finds its way through. Marble should never be fixed solidly to the wall but left hollow, and also with a joint here and there left open to allow for the condensation that invariably takes place. The work should be well cramped to the wall with copper cramps. The best of plaster should be used in fixing, and I have no hesitation in saying that if slab-work is fixed under these conditions and with a care in selecting suitable marbles, you will get satisfactory work, as shown by the slab-work at the vestibule of the Athenæum Club, National Gallery, and other places I could mention. These buildings were all in a proper state to receive marble. Then, again, as to keeping the work clean after it is fixed. All that is required is proper attention with dry dusters. Marble work should never be washed down as you would wash tiles. The dust that clings to anything damp, if rubbed constantly on the polished surface, is literally ground into the face of the marble. This applies more especially to the light marbles. But if a perfectly dry dusting is given to your work, I venture to say that the result will be satisfactory. These may seem very ordinary remarks, and may weary my hearers, but they are of great importance if you want satisfactory results.

The mason is a methodical man. If he works a moulding—say a cornice, for instance, or a string mould—he would proceed by applying his section to chamfers, and then working his chamfers through. Now in designing your moulding, this should be taken into consideration, as moulding drawn to suit the method of working seems to me to be only right, and in support of this I would ask you to examine the old specimens that are here, and also to the diagram.

Work drawn on these lines, especially in marble, lessens the cost of labour considerably, the mason being able to get at it much better than if at the outset you upset his method of working. You will also observe that marble mouldings drawn on these lines can be got out of slabs, and made out with a core of stone, thus giving you in effect solid cornices, &c. In drawing your sections for marble, it is very essential that you should have a knowledge of the material and its capabilities of receiving mouldings. The composition of the various kinds vary to such an extent that a moulding that could be worked in one marble would be quite out of the question in another. For instance, take a chimney-piece in statuary or Pavonazza, and then one in Cippolino or Rouge Etrusque. What could be produced in the former materials would be quite out of the question in the latter. Speaking generally, the rich coloured marbles do not ask for an elaborate treatment in the way of mouldings; in fact, the different colours, lines, and markings of the material are very apt to upset the arrangement of mouldings unless they are treated in a broad manner. The use of machinery has considerably reduced the cost of marble work in England during the last few years, and also the time taken in production. The use of marble by the architects during this revival, may I call it, has been very great, and I believe will be greater in the future, when its adaptabilities are more widely and better known.

Alabaster is the intermediate material, as regards cost, between marble and stone, and lends itself admirably to either of these materials. It is non-absorbent and retains its polish in dry positions. Most of the monuments in and since the Elizabethan period have been executed in alabaster, with panels, &c., of choice coloured marbles. It is especially adapted to ecclesiastical work, such as reredoses, fonts, pulpits, screens, as it is capable of taking any amount of detail, and properly selected is of a very quiet and subdued colour. We are now able to obtain very large blocks of alabaster of a soft white tone, so that it is now within the reach of most architects to introduce work, such as sculpture, that could only be obtained in statuary marble.

White alabaster is a good and successful substitute for statuary marble when it is a question of cost.

Some alabaster being of a semi-transparent nature makes it very suitable for glazing purposes where a quite and subdued light is required. I might say both in marble and alabaster mouldings, it is never desirable to have them highly polished, as it produces lights and shades that have a great tendency to destroy the effect you had intended to produce when you designed your sections. Rather have mouldings polished to the extent of an eggshell, which gives an appearance of solidity to your work.

Coming to stones for internal building, we have a very open field of selection. Basebed Portland is about the strongest, and can be worked up to a fineness, but its colour is not as nice and as preferable as some of the softer stones, such as Painswick, Ancaster, Caen, Totternhoe clunch, and many others. Painswick stone is of a very fine and even grain, and is very suitable for balustrades, groinings, arches, staircases, &c.; and speaking of staircases, I would ask you to examine my diagram and the models sent by the students at Great Titchfield-street, and the larger one, circular on plan, from the Battersea Polytechnic. These are worked out on an economical principle—viz., using the least possible material to produce the greatest amount of work. If you follow the diagram you will see that each stone is worked at the first onset to its required pitch, and not in the old-fashioned way—that is, out of square pieces. Take the handrail, for example. This would be produced from a slab slightly in excess of its finished thickness. This is, as you will see, a tremendous saving, especially when one is using such costly materials as those in the staircase at the National Liberal Club, which was erected by Messrs. Farmer & Brindley from the design of Mr. A. Waterhouse, R.A. This work was prepared by this system, and, being elliptical on plan, stands unique so far as England is concerned.

As an internal building-stone I would call your attention to the specimens of Totternhoe clunch stone. A very elaborate monument in York Minster of this stone has been recently erected from the designs of Messrs. Bodley & Garner. The tone of this stone is of a greenish white; it was much used in Hertfordshire, Bedfordshire, and adjoining counties. The high altar and most of the monuments in St. Albans' Abbey are of this stone. It can be worked to the fineness of chalk, which speaks volumes for its adaptability for sculptures, carvings, and the finer traceried canopies we love to gaze upon in Henry VII.'s Chapel at Westminster, or the web-like ceiling of that building, itself a complete masterpiece, or the splendid fan ceilings of the Lady Chapel at Peterborough, or the cloisters at Gloucester; the last-named being, I believe, the first fan vault ever erected; and I think I am right when I say that this system of vaulting was the outcome of the old guild or school of masonry which was established at that place, and it seems to me extremely interesting at a time when our old apprenticeship system has almost become a thing of the past, and when the outlook of masonry, as its sequence, is anything but encouraging. I must say I feel honoured by being allowed to conduct the classes for the technical and practical improvement of the masons carried on at Great Titchfield-street by the Worshipful Company of Carpenters, and also at the Polytechnic at Battersea, and to be able to bring down to you a model of the vaulting I have endeavoured to associate with the Mason Guild. I believe that if we are to uphold our old reputation as craftsmen, that this technical education is the only substitute to find for the old time-honoured apprenticeship.

The masons' trade, to reclaim its old prestige, which was at its height in the Mediæval ages, would do well to reorganise its old Guild, which insisted on good and sound work, providing and sustaining the young craftsman during his education in the trade, in other words, during his apprenticeship, and finally assisting him to become a workman worthy of the great works they were at that time carrying out in our cathedrals; works which we of the present day look to for inspiration. If this Guild were reorganised, I would suggest that before a youth could call himself a mason he should undergo an examination, and thus claim his right to call himself really a master-mason. I believe that such work as this was carried out by the Masons' Company at the time when they really showed that they actually lived. To me it is a matter of regret, that as a trade we are, to a certain degree, dependent on another Company and other institutions to provide that learning and that tuition that is so necessary to uphold our ancient craft. It must occur to you that the mason should have a fair knowledge of drawing, and I say that if we are to carry out work to compare with our old examples, something must be done to educate the mason; and I am glad to say that, through the generosity of the Carpenters' Company, we have made a fair start. These institutions are welcomed by the workman, and I look forward to the time when we shall have the co-operation of your Association. Our doors at both Great Titchfield-street and at Battersea are thrown open to your students, and we shall welcome any that will come and give us the advantage of their capabilities in design and detail. In return we offer you a sound course of practical instruction, instruction that we feel is so necessary for the welfare of the architecture of the future. I myself am of the opinion that as it is requisite in the erection of a building for the builder to know and understand the drawings delivered to him for that building, so is it necessary for the architect to know and understand the nature and properties of the materials specified by him for that building, and I hold that it would also be to the advantage of all concerned if he had a practical knowledge of the adaptabilities of the materials for the work designed. This knowledge can only be obtained by a course through the workshops, and I ask you, the younger students especially, you that have everything before you, you that are the anxious hope of many a fond parent, to come and take of that knowledge we feel is so important to enable you to carry on your splendid profession successfully.

Professor Banister Fletcher, in proposing a vote of thanks to Mr. Flint, said that the necessity had arisen for some closer connexion between the architect and the craftsman, and undoubtedly it was with that view the work of the Trades Training Schools had been commenced. Only the other evening, at Great Titchfield-street, he saw members of this Association working at the bench in the plumbers' and other shops, and in chatting with them he found that the work was thoroughly appreciated. With one thing he had been very much struck, viz., that the architect, with his educated eye, appeared able to learn far more readily than the craftsman. As an example, he would mention the excellent joints being made by the young architects, who in that way might soon learn the practical part of their profession. It was sometimes said with regard to the old City Companies, that they were stiff-necked, and would not accommodate themselves to the circumstances of the times, but, in answer to that, he had only to point to the work being done at Great Titchfield-street. He had met the President and the Secretaries of this Association, with respect to the arrangements for architectural students who were members of the Association, whereby they could be admitted to the Schools at Great Titchfield-street, and he believed both sides were delighted with each other, for the reason that they found all were thoroughly desirous of meeting every objection which might arise.

Mr. H. W. Barnes remarked that the study of any handicraft must at all times be interesting and instructive, and masonry was no exception to the general rule. Although it had been touched upon in the paper, he did not think that this was perhaps the time to discuss the question as to whether a system of technical education would

prove an effective substitute for the now practically abolished apprenticeship. When they looked, however, at the examples before them, and realised that they were the results of masons who had devoted their evenings and spare time to endeavouring to obtain a better knowledge of their craft, they must agree, at all events, that technical institutions could do good work in the future, more especially as in most cases they had appointed as instructors men who, like Mr. Flint, were thoroughly able to teach both the theory and practice of their craft. Good workmen were certainly as much in demand as ever, but good workmen must be well trained, and he hoped the day was far distant when the English workman would lose the reputation he had held for many centuries, of being second to none. In addition to good workmen, it was also important to have thoroughly reliable materials. Though agreeing with the greater part of what Mr. Flint had said, he could not go quite so far as that gentleman had gone with reference to polished granite. In the matter of durability there was no question that it stood first, with the exception of Egyptian porphyry, but granite was a hard material, which would not lend itself to the finer forms of architecture, and he did not think architects would like to be tied in all their buildings to what they could produce in granite. Many of them had, no doubt, seen Aberdeen, the Granite City, of which Scotchmen were justly proud, and although, as far as durability was concerned, it was all that could be desired, he did not think they would like to be bound to produce buildings of the same class without any exception. Such being the case, they came to the consideration of stone, and he would like to refer to the Royal Commission appointed to report on the best stone for the erection of the Houses of Parliament. The recommendation of that Committee was unanimous, that the dolomite or magnesian limestone of Bolsover Moor was the best stone for the purpose, but it was found that the quarries would not produce stones of large size, and they had eventually to select the magnesian limestone of Anstone, in Yorkshire, which they believed nearly equal to the other. That was the stone actually used in the Houses of Parliament, except about 20,000 cubic feet, taken from the quarry of Mansfield Woodhouse. Some time ago he examined the stones which were decayed, and he found that it was the Anstone and not the Mansfield Woodhouse. There was one stone which he did not think had been used in London, viz., the stone of Bolton Wood, used in the Town Hall of Bradford with good results. However, taking all things into consideration, there was no doubt that Portland stone, if thoroughly selected, was the best for the London atmosphere, and in the report of the Committee of the House of Commons, appointed in 1861 to report on the decay of the stones of the Houses of Parliament, and the best to be used in the future, they gave it as their opinion that Portland stone was the best material. The Committee also reported against indurating the stone, and the same advice might be offered at the present time. Coming to the subject of external marble-work, there were very few marbles which would stand this climate. He could hardly say that cold, grey-white marble was the best for this climate, but the warmer tinted statuary of Paros and Pentelicus would be more satisfactory, and it was difficult to do much in the way of coloured marbles out of doors, except with a few of the Serpentines. But when they came to the interior of buildings, a wide field was opened to them. The whole world combined to supply materials of different hues, costs, and varieties, and he could imagine no wider scope for the architect in decorating the interior of his buildings than to use marble. They should by all means avoid too many colours, and there was one point above all others in connection with marble decoration which must be attended to—viz., that it must never be put on the face of a damp wall. The wall should be allowed to dry as far as possible, and they should make sure that the doors and windows were all in the house before the marble was put on. Otherwise, marble being the coldest thing in the house except the glass, whatever moisture was present would condense upon it and spoil its surface. The same remark applied to marble floors, which were some of the most durable in existence. The concrete should be put in as early as possible, and be allowed to thoroughly dry, otherwise the whole of the moisture must go somewhere, and its only course would be up through the marble. It was through the neglect of a few of these really simple precautions that marble decoration frequently got into disrepute.

The President, in seconding the vote of thanks, said that Mr. Flint had somewhat misrepresented him when he said that he did not like marble. What he had said from the chair was that he would like to see a law passed that no marble tombstones should be erected in churchyards. That, however, was a very different thing from not liking internal marble decoration. There was one practical point in regard to masonry construction which Mr. Flint had not touched upon—the question whether it was better masonry to use wide or thin joints. He (the speaker) was inclined to think that the greatest art in masonry was to show the construction by showing the joints. In the matter of the stone used for the Houses of Parliament, when the St. Stephen's porch was completed a few years ago, the matter was again gone into, and he believed the result was arrived at that the fault in the Anston stone was not so much in the stone itself, but in the fact that it was used indiscriminately. He understood that the stones were sent out without any selection, and, as there were some vents in the quarry, any stone taken from within 2 ft. or 3 ft. of these vents was treacherous, while the selected stones from the quarry were thoroughly sound. They would all agree with Mr. Barnes in the matter of the granite, which was a charming thing in its place, but they would be sorry indeed to have nothing else to use. He might go a little further, and say that there were several granites, both in Cornwall and Ireland, which did not stand the weather, so that it did not follow that granite was a practically imperishable material unless it was well selected. Mr. Flint had referred to the balustrade at the Athenæum Club, but that was a badly constructed piece of masonry. Ketton stone was a charming material to use, and stood well in London. It had been used on the Houses of Parliament, and, being exposed to the south-west wind, had taken a charming colour; but it had become exceedingly black in certain cities, and for smoky towns it was not generally to be recommended. He was delighted to hear the remarks as to stone work being left from the chisel and not rubbed, and also Mr. Flint's further remarks with regard to the drag. He always carefully specified, wherever possible, that no drag should be used. He had also noted the recommendation to avoid notched beds. He considered Caen stone horrible stuff, and hoped that no more would be imported from Normandy. He thanked Professor Fletcher for his kind words, and would heartily assure him, and the Carpenters' Company, that the members of the Association appreciated greatly the efforts being made on their behalf, and, in asking them to pass the vote of thanks to Mr. Flint, he would also include their thanks to Professor Fletcher and the Carpenters' Company.

The motion was then put, and very heartily received.

Mr. Flint, in replying, said that with regard to the President's remarks on marble, he found that the report ran that he would pass a law which would keep all marble work out of churches. (The President: "Out of churchyards, which is quite a different thing.") With regard to the joints, if they noticed the examples, they would see that in each case he had kept an open joint. With regard to the use of granite, it was excellent for cleanliness. At the present time good workmen were not to be had, because there was no rule to determine who should be a mason or who should not. Any man with a fair knowledge even of laying the pitching-stones might call himself a mason. In the old days workmen had to submit to an examination, and he would like to see that insisted on now.

The Chairman then announced that the next meeting would take place on the 20th inst., when a paper would be read by Mr. C. Fitzroy Doll on "The Architecture of the Teutonic Order, with particular reference to the Restoration of the Marienburg."

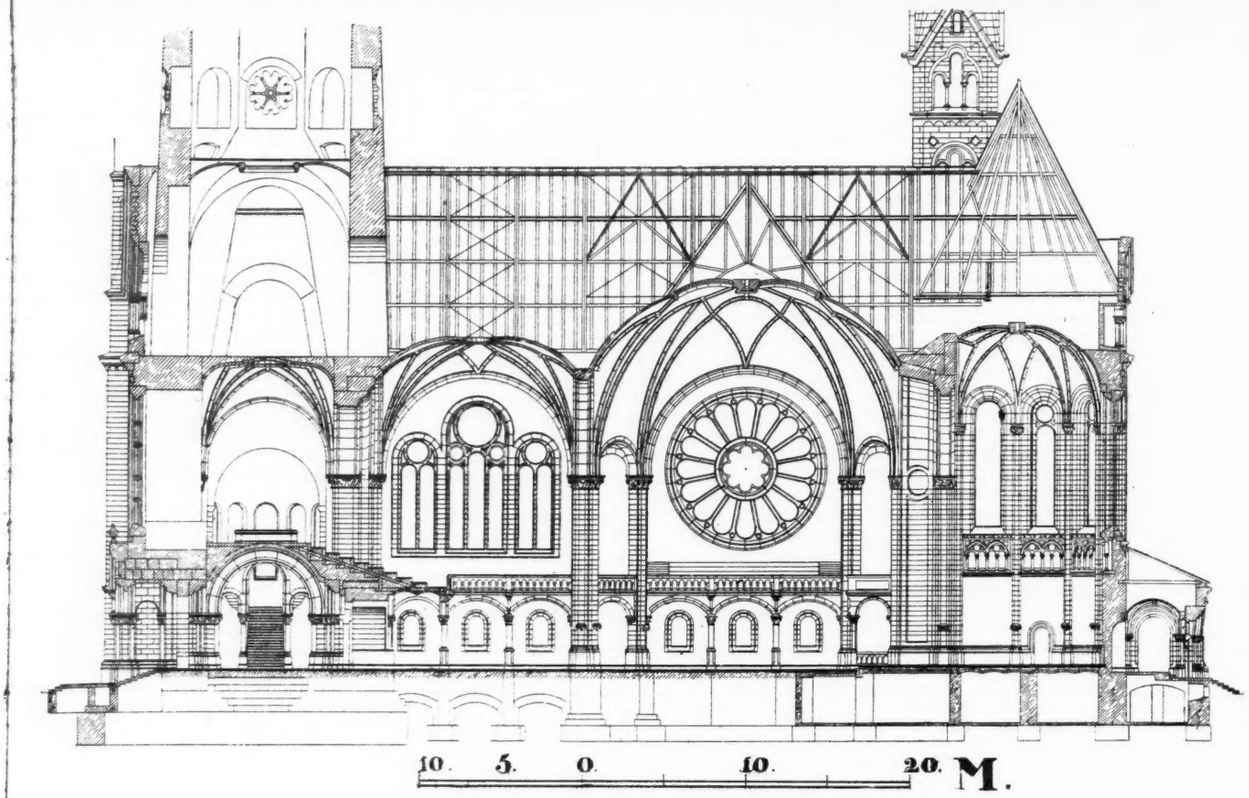
The proceedings then terminated.

ARCHÆOLOGICAL SOCIETIES.

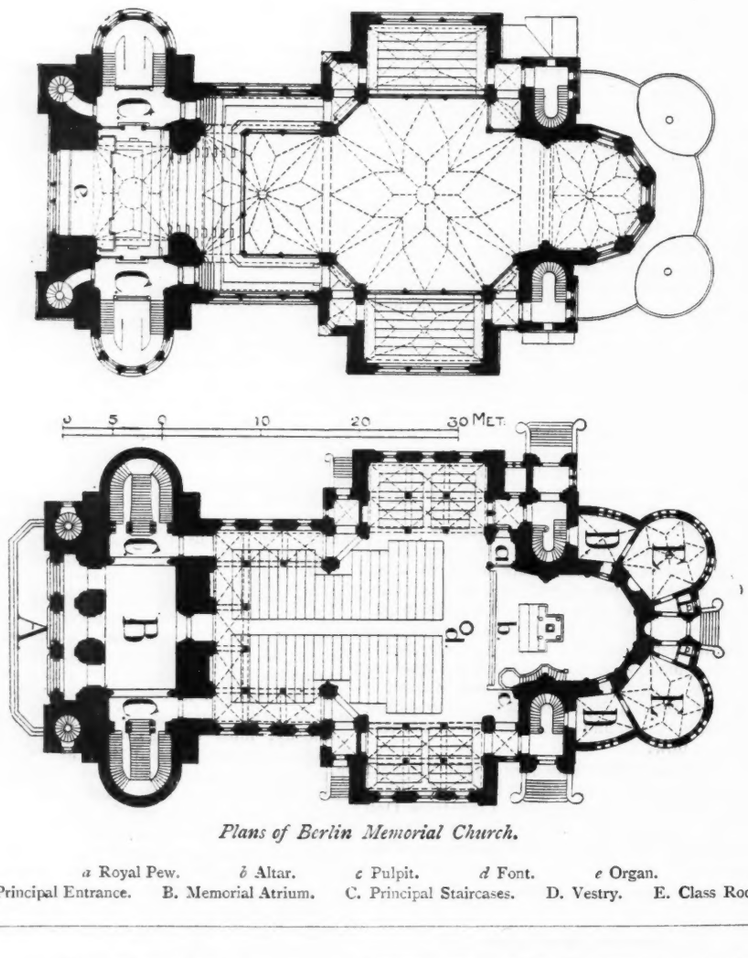
BRITISH ARCHÆOLOGICAL ASSOCIATION.—The seventh meeting of the session of this Association was held at the rooms in Sackville-street, Piccadilly, on the 4th inst, Mr. C. H. Compton, Vice-President, in the chair. The paper of the evening was upon the "Mediæval and Renaissance Architecture of France," and was read by the authoress, Mrs. Collier. The subject was very ably treated, and the paper was well illustrated by a large number of engravings, prints, and photographs. An interesting discussion followed, in which Mr. S. W. Kershaw, F.S.A., drew attention to the charm of the old chateaux and the beauty of the ornamental details of their architecture. Mr. G. B. Dobson also spoke in allusion to the incongruous nature of many of the carvings of figure subjects to be seen in the Continental churches, some of which were clearly visible in the illustrations to the paper, and reminded the meeting that this was mainly owing to sculptures from heathen temples having been used to represent Christian subjects in early Mediæval days. Mr. Patrick, Hon. Sec., in expressing his sense of the interesting nature of the paper, pointed out that the geographical position of France with regard to Italy was very favourable to the early adoption of the classical forms of the Italian architects of the Renaissance period, Brunnelleschi, Alberti, and Bramante, and the influence of the refined style of Bramante, in particular, upon the French architects of the day was traceable in many of the French buildings of the sixteenth century.

SOCIETY OF ANTIQUARIES OF SCOTLAND.—The usual monthly meeting of this society was held on the 9th inst. The first paper was a notice of two sepulchral urns, presented to the museum by the Earl of Southesk. One was a large cinerary urn, 16 in. high and 10½ in. diameter at the mouth, with a deep overhanging rim, ornamented by a pattern formed of groups of parallel lines made by the impression of a twisted cord in the soft clay, and placed alternately in a horizontal and vertical direction. It was found in ploughing on a field at Graham's Firth, a little to the west of Farnell Church, in the Southesk estate. The other urn is a specimen of the food-vessel type, usually deposited with unburnt bodies. It is bowl-shaped, standing 5½ in. high, and is delicately ornamented all over the interior surface in lozenge-shaped spaces filled with chevrous lines. Under the rim are two projecting mouldings ¾ in. apart, from which spring four projecting loops at equal distances round the circumference, as if to pass a cord through them for suspension. This specimen was found in one of a group of five or six cists, a small tribal or family cemetery of the Bronze Age, in a low natural hillock, known as the Corbie Hillock, in the deer park at Kinnaird Castle. The second paper was a notice of a series of cup and ring markings at Auchentorlie, iu the parish of West Kilpatrick, Dumbartonshire, by Mr. John Bruce, F.S.A. Scot., Helensburg. These archaic sculpturings were recently discovered by Mr. Bruce and Mr. Donelly, while investigating the remains of a fort showing signs of vitrifaction on the summit of Ardconnell Hill. They occur on the surface of a white sandstone rock lying in a basin to the north-west of Ardconnell, and measuring about 54 ft. by 22 ft. In the third paper, Mr. A. H. Millar, F.S.A. Scot., Dundee, described an attested copy of the Proclamation for disarming the Highlands in 1746, which he had presented to the Museum. In the last paper, Mr. F. R. Cobs gave a notice of St. Anthony's Chapel—describing the ruins as they are at present, comparing the various prints and views of it back to 1544, and examining the different accounts of its origin, and its assumed relationship to the preceptory of St. Anthony's of South Leith, with a view to ascertain the evidence for its supposed association with that foundation. After reviewing the whole available information on the subject, the author concluded that the theory of its connection with the preceptory in Leith, being upheld by no documentary authority, must be regarded as the offspring of tradition or fancy; and that as in the Lord Treasurer's accounts and other documents it is called the Chapel of St. Anthony of the Crag, while in Fordun's History the title of the Abbey of Holyrood is The Monastery of the Crag of Holyrood, there may be an indication of an ecclesiastical connection between St. Anthony and Holyrood. The question raised could only be set at rest by documentary evidence, and it was to be hoped that its discussion might be the means of producing this evidence.

CHANTRY WINDOW, ST. MARY'S CHURCH, BRADFORD ABBAS.—A chantry window has just been unveiled and dedicated at St. Mary's Church, Bradford Abbas. The window—the work of Messrs. Powell & Son, Whitefriars, London—consists of two lights, one representing Aldhelm, 1st Bishop of Sherborne, 705 A.D., the other William of Wykeham, 1324—1404.



Section of Berlin Memorial Church.



Plans of Berlin Memorial Church.

a Royal Pew. *b* Altar. *c* Pulpit. *d* Font. *e* Organ.
A. Principal Entrance. B. Memorial Atrium. C. Principal Staircases. D. Vestry. E. Class Rooms.

Illustrations.

MEMORIAL CHURCH TO THE EMPEROR WILLIAM I. AT BERLIN.

WE have from time to time referred to the great activity in church building now prevailing in Germany. It has been one of the special characteristics of the Emperor William II. and the Empress to patronise all schemes which tend to increase the number of places of worship. We shall on another occasion give some particulars as to the increase in churches during the last five years throughout the Empire, and in the first instance at Berlin.

Of the many churches erected, some of the principal ones have been memorials to the deceased Emperor William, the Emperor Frederic, and the Empress Augusta. Recently such memorial churches have been consecrated in rapid succession in Berlin. It is the most important of these, the monument to the Emperor William I., which we illustrate in this number. We may add that the plans and sections have been prepared from working drawings kindly put at our disposal by the architect.

Herr Franz Schwechten had the commission for this structure, having gained it at a limited competition in 1890. The idea was that there should be a church proper and a memorial hall or vestibule in front of it, while some class-rooms had also to be provided for. The way in which the architect has contrived his design will be seen from the illustrations; but it may be as well to remark that the site necessitated the altar being placed due north-east, instead of in the orthodox position. The church is intended for the Lutheran service, and fulfils its purpose satisfactorily. It will be noted that the organ has been placed opposite the altar, while the Royal pew, which has its own entrance, is to the other side of the altar.

The funds for the building were raised by voluntary subscription, and it was in connection with these collections that there was so much controversy, and the unfortunate incident regarding the poster, to which we referred at some length at the time. The plan provides for 1,760 seats. The materials employed are principally freestone and granite. A feature has been made of the large chime of bells. The total cost, exclusive of the cost of the memorial hall, was 160,000*l.* The funds for decorating the memorial hall have not yet been collected, some 20,000*l.* being required.

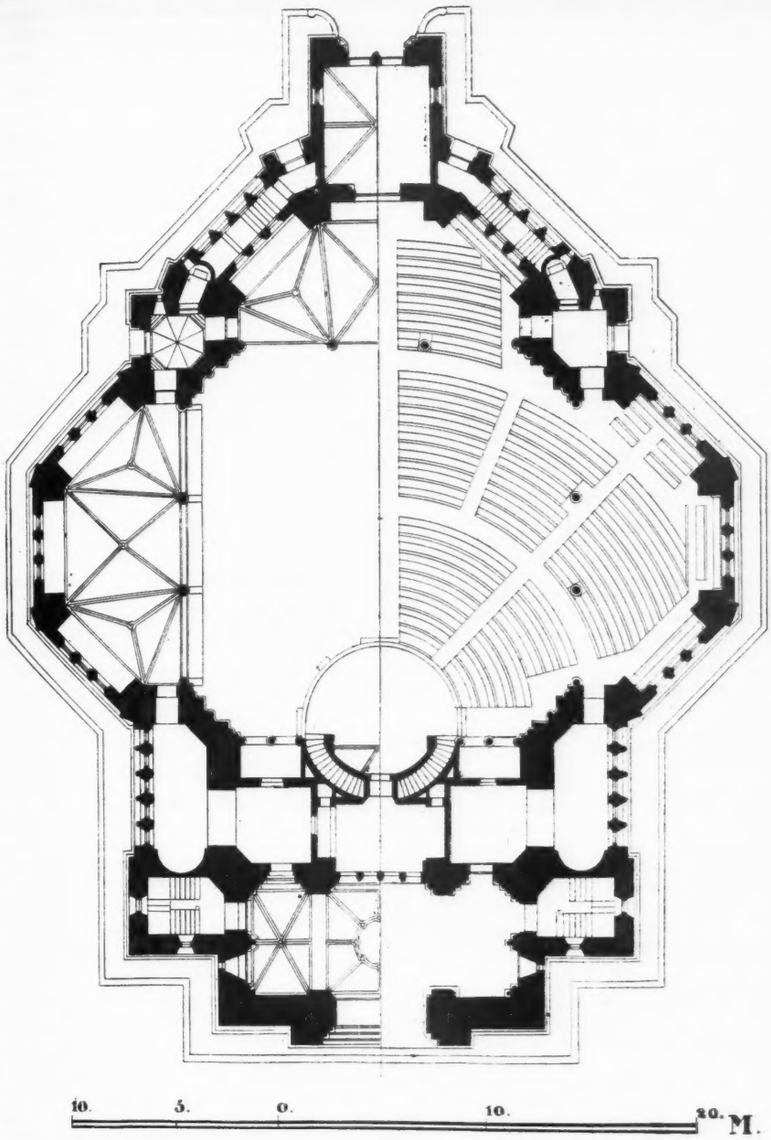
THE "RING" CHURCH AT WIESBADEN.

THE new church at Wiesbaden is from plans by Professor Otzen, to whose work we have frequently had occasion to refer. Its plan will be noticed for its exceptional character, as also the position of the pulpit. We shall take an opportunity of discussing this building at some length when speaking of the new German churches which have of late tended to show some originality in plan. This originality is the subject of much controversy both among the Lutheran clergy and the lay worshippers.

DECORATIONS, STA. ANASTASIA, VERONA.

THESE plates are monochrome reproductions from the fine coloured drawings exhibited by Mr Corlette at the Royal Academy of last year.

Sta. Anastasia is characterised by Street as being one of the most representative pointed churches in North Italy. Its date is that of the



Plan of Ring Church, Wiesbaden.

latter half of the thirteenth century. Street comments especially on its simplicity of plan and design, the tall cylindrical columns and plain treatment of the vault giving a great look of spaciousness to the church; and he also draws attention to the curious and very unusual fact that the nave vaulting is in square compartments and the aisle compartments oblong, instead of the reverse way.

Mr. Corlette, in examining the work while making the drawings, came to the conclusion that the colour was all in distemper and laid rather thickly on the brickwork without any plastering. The patterns are all outlined with a strong brownish outline, about ¼ in. to ½ in. wide. The colours are mostly greens on white; red, blue, and yellow being sparingly introduced. The columns are of red marble with yellowish marble caps and bases; the voussoirs (as Street suspected when he wrote his account) are shams, being merely painted in distemper over the bricks. The pavements are in red, white, and grey marbles.

"DESIGN FOR A COUNTRY HOUSE."—Mr. Breden writes to point out that the side window of the dining-room in this house (illustrated last week) is not, as we objected, close to an entrance porch; what we took for a porch is a projecting bay window out of the Hall. Mr. Breden also objects that his drawing-room has other windows besides the large bay at the end; we observed that, but our objection was that in both dining-room and drawing-room the principal window seemed to be, so to speak, too much out of the room.

APPOINTMENT OF SANITARY INSPECTORS.—The Local Government Board has sanctioned the appointments of Mr. A. W. Martin, Mr. E. Richards, and Miss N. T. F. de Chaumont, as Sanitary Inspectors in St. Luke, Bethnal-green, and Kensington, respectively.

DRAWINGS FOR THE ROYAL ACADEMY.

WE must again draw the attention of those who send in drawings through the office of this paper, to the requirements of the Royal Academy, which it seems impossible to get some people to understand, though they are very simple.

The Academy require *two* labels on each picture-frame, one affixed on the back, the other attached by a string so as to hang over in front; each label giving the title and the artist's name and address.

They also require a letter to the Secretary of the Royal Academy containing the same information as on the labels.

In spite of our clear statement on page 188 *ante*, we have already (as usual) received several drawings with only one label instead of the required two.

We must again state that *we will not affix labels* for those who are too careless and inattentive to see to it themselves.

MAGAZINES AND REVIEWS.*

The *Art Journal* gives as its principal illustration an etching of M. Dagnan-Bouveret's beautiful picture, "Dans le Fôret," and includes among its illustrations a memorial design to Lord Leighton, a mourning figure classically draped, drawn by Mr. Sambourne. Among the subjects treated of are "Tynecastle Tapestry," "Heredity in Art" (by Sir Dominic Colnaghi), and "Decorative Art at the winter exhibitions," by Mr. Lewis F. Day.

Le Monde Moderne has introduced a new feature in the shape of "Notes d'Architecture," consisting in this number of plans and two views of a new Paris house by MM. Dureau & Orième; an interesting study of the French method of planning a street house. The same number contains a very interesting article on the proposed metropolitan railway for Paris, with comparisons of the city railways of London and New York. The author is laudably anxious that the proposed railway should be subterranean, to avoid all chance of such architectural ruin to Paris as would result from the adoption of the New York overhead system, and also points out that to plan a permanent metropolitan railway with direct reference to the temporary needs of the exhibition of 1900 would be a fatal error. Other articles of interest are on "Art et Photographie" and "Déplacement des Corps Massifs dans l'Antiquité," in which latter it is shown that the bodily moving of buildings is a scheme at least as old as the sixteenth century.

In the *Century* Mr. Edward Marshall, the secretary of the "New York Tenement House Commission," writes a short article on "Stamping out the London Slums," giving an account of one or two of the recent schemes for rebuilding and laying out bad areas in London, from which it is satisfactory to find that we are considered to be at least much in advance of the rest of the world in sanitary projects, and our efforts are held up as an example to New York, where it appears to be very difficult to get funds or Government support for any similar schemes of philanthropy. Referring to the condemnation of back-to-back houses in this country, Mr. Marshall observes, "if such a rule were enforced in New York the city would be revolutionised."

In *Scribner* is an article by Mr. F. Prideaux on "French Binders of To-day," showing by illustration and description how much good and artistic work is done in modern French bookbinding. The author might afterwards turn his attention to English bookbinders of to-day, among whom he would find one or two who are superior to most of the French artists, though we must admit that the general level of work is higher in France; there are more good bookbinders there than in England.

To the *Ninteenth Century* Mr. W. B. Richmond contributes an article on "Lord Leighton and his Art," which strikes us as far too universally laudatory, so to speak, but we quite concur in what seems to be the main point of the article, that paintings of the class which he produced are to be looked at from a decorative point of view, and that those who look only at the subject of a picture (nineteen-twentieths of those who visit exhibitions, we should think) may be said only to *read* a picture without *seeing* it. We also concur with Mr. Richmond in regarding "Summer Moon" as "one of the most completely satisfactory productions of the master's brush," an opinion which we note the rather because this beautiful work seems to be curiously overlooked by some of Leighton's most enthusiastic admirers.

In the *Contemporary Review* Mr. Herbert Spencer describes the genesis of "The Painter," which seems to be the same as that of the architect and sculptor; originally a person with priestly functions. All this seems to us little better than nonsense, if intended as the explanation of the existence of painters as a class, since it is unquestionable that the mimetic faculty in man would have led to the endeavour to imitate objects by drawing and colour, if no such thing as priesthood had ever existed. One incident adduced in support of the theory, of a mediæval monk being sent to some ruler who had asked for a painter, is still more absurd: the monks were artists, as they were scholars, in the early middle ages, because they were the only class of persons who had time or opportunity for the pursuit of art or literature. Mr. Spencer is imperfectly acquainted with current artistic literature, since in mentioning the phenomenon that painters, like architects, have publications specially devoted to their art, he cites as typical a periodical which is certainly not among the most important or best-known of the artistic periodicals of the day. Thus philosophers see imaginary things far off from them, and blunder about real things under their feet. In the same number Mr. Harry J. Powell gives some information about the making and treatment of "The Glass Mosaic at St. Paul's," but only what we have already heard from Mr. Richmond.

The *Engineering Magazine* includes an article, illustrated by a good many plates, on "Modern Bank Building," by Mr. R. W. Gibson. Mr.

* The object of these notes is to point out anything in the contents of the current magazines which is of special interest to our readers, with occasional brief criticisms on the views expressed in such articles. When a magazine which has been sent to us is not noticed, it is because that number contains nothing that it is within our province to comment upon.

E. T. Adams contributes a paper on the entirely novel subject of "Artistic Engine-room Interiors," urging that a well-kept engine is a fine object and deserves a fine setting, and that it is far better for the engine-men to work in rooms with some beauty of finish and decoration in them than to be condemned to bare walls. It is refreshing to meet with such a suggestion.

The *Artist* contains a great variety of short articles and illustrations, the principal of which are those on the Royal Academy Schools and on Thorwaldsen and his works, which latter is largely illustrated.

The *Antiquary* includes among its contents a paper (the second) on the Megalithic Temples of Tripoli, by Mr. H. S. Cowper, "A Brief Note on Bell Founding," by Mr. F. J. Snell, and a continuation of the papers on "Irish Ornamental Iron Work" by Mr. D. A. Walter.

In *Longman's Magazine* is an article on "The Baltic Canal and how it came to be made," by an engineer who is an authority on canals, Mr. W. H. Wheeler, but the article is merely popular, and conveys no important information. Indeed, in the average monthly magazine of the present day real information seems exactly what the readers do not want nor the editors care to give.

The *Windsor Magazine* contains an article on "The Art of the Potter," an illustrated account of the process of pottery making in a large factory.

To the *English Illustrated* Mr. Wilfrid Meynell contributes "Minor Memories of Lord Leighton," which contains some pleasant anecdotes of the late P.R.A., not before published.

In the *Pall Mall Magazine* an article on "The Haunt of the Grayling," by Katherine and Gilbert Macquoid, affords occasion for a number of sketches of picturesque old houses and villages in the neighbourhood adjacent to the Teme.

Temple Bar contains, under the title "With Charles Robert Leslie, R.A.," one of the pleasantest articles of artistic souvenir and gossip that we have read lately; though one or two of the stories, that about Turner's father, for instance, are old. The article is by the painter's son, Mr. R. C. Leslie.

In the *Essex Review* Mr. Chancellor continues his series of articles on Essex Churches, giving a view, plan, sketches, and description of St. Andrew's, Hornchurch.

Punch Pictures, No. 30, contains a reprint, among other things, of Mr. Du Maurier's delightful series of scenes called "The Philosopher's Revenge," a subject which will come home to the business and bosoms of many dwellers in London.

We may call attention to the "Book Plate Annual and Armorial Year Book," which contains a good deal of various information about book plates, with a number of designs.

THE LONDON COUNTY COUNCIL.

THE usual weekly meeting of the London County Council, which was also the annual statutory meeting, was held at the County Hall, Spring-gardens, on Tuesday.

Election of Chairmen.—Sir Arthur Arnold was re-elected Chairman, Dr. Collins, Vice-Chairman, and Mr. Beachcroft, Deputy-Chairman.

Advertisements on Hoardings.—At a meeting of the Council on October 29 the Works Committee was authorised to let the right of advertising on the hoardings in connexion with the new Whitefriars Fire Station; but, in view of the principle involved, the whole question of advertising on hoardings erected at the Council's works was referred to the General Purposes Committee for consideration. This Committee now submitted a report, the conclusion of which was as follows:—

"We have given careful consideration to the question whether the practice so long established and so strictly adhered to should now be departed from, and whether, if so great a change were made, there would be sufficient return to justify the departure. We recognise the fact that the Council would derive some profit by allowing advertisements on some of its hoardings. But this profit would only arise in the case of hoardings actually belonging to the Council; and even with some of these, viz., the hoardings erected by the Council in connection with dangerous structures, no profit would probably result, as the owner of a dangerous structure may, upon payment, become the possessor of the hoarding. On the other hand the letting of hoardings for advertising purposes would greatly encourage the construction and undue retention of such hoardings. The erection of many high hoardings, in some cases to the full height of the scaffolding, is frequently due to the opportunity of letting such hoardings for advertising, and of putting in inferior work. Whether the advertisements are or are not a disfigurement to the public thoroughfares must remain a question of sentiment, but there can be no doubt that many fatal accidents have resulted from the erection of high hoardings for advertising purposes. So far as the Council's surplus lands are concerned, it is very desirable that they should be open to view. At the present time they are enclosed by open pale fences instead of hoardings, and we should deprecate any departure from this course. Hoardings erected to enclosed premises for the purpose of demolition seldom stand longer than a few months; and the additional work connected with the letting of them, the supervision of their use, and their rating—for which the Council would be primarily liable—render it doubtful whether any real advantage would be obtained in the short time during which these hoardings would remain available for advertising purposes. The hoardings erected by building tenants stand upon a different footing. They usually remain in position for twelve months or more, and no doubt the withdrawal of the condition prohibiting advertisements would be a benefit to future building tenants. But it is extremely unlikely that such a temporary benefit would affect the amount of ground-rent they would be willing to offer for a term of eighty years. The withdrawal of the condition would certainly remove one of the restrictions which, in the aggregate, tend to hinder the letting of the Council's land; but, taken alone, we think its effect would be inappreciable. On the other hand, speculators would be enabled to take the Council's land, abstain from carrying out their building covenants, and yet obtain a profit over and above the amount of their ground-rent by letting for advertisements what would be almost a permanent hoarding. For the above reasons, we recommend:—

'That the practice so long in force of prohibiting advertisements on the hoardings in connexion with the Council's works be adhered to.'"

Mr. Steadman opposed the recommendation, and proposed as an amendment that it should be referred back for further consideration. He maintained that even from the artistic point of view it would be far better to utilise the hoardings by covering them up with artistic posters. Hoardings used in this way were to be preferred to bare and dirty walls. Another reason for opposing the recommendation was that hundreds of workmen depended for their living upon work connected with these hoardings.

Mr. Emden seconded the amendment.

Mr. Roberts supported the recommendation, and argued that both from the builders' and the artists' point of view hoardings with advertisements were undesirable, because, in that case, they were carried too high and not only blocked the light out, but damaged the scaffolding. If the question of income had to decide the point they might as well open the walls of the Council Chamber to the competition of patent medicine vendors.

Sir John Blundell Maple, M.P., spoke in favour of the amendment. In view of the heavy rates it was, he thought, the Council's duty to do all they could to save money by making some profit out of these hoardings, as was done in Paris.

Mr. John Burns, M.P., stated that the municipalities of Paris, Berlin, and Vienna did not allow municipal works to be placarded, but they limited hoardings to a height of 9 ft. above the pavement, and allowed certain advertisements to be displayed. The Government, the School Board, the City Corporation, and hitherto the County Council, had an unbroken rule that this class of advertisements should not be allowed, and he thought they should adhere to that rule.

After some further discussion, the amendment referring the recommendation back to the General Purposes Committee was adopted.

The Water Question.—Mr. Idris, the Chairman of the Water Committee, asked the Chairman of the Council whether he could give the Council any information as to the progress of his negotiations for the purchase of the water companies. The Chairman: Immediately after my appointment as negotiator by the Council on January 21, I arranged to meet the chairmen of the eight water companies at their respective offices. I have met with no material discouragement. In the event of the necessary Act of Parliament being passed authorising a transfer by agreement or by arbitration, I should even hope to find a disposition on the part of at least some of the companies to treat on so sound and reasonable a basis that, without resort to arbitration, agreements should be arranged such as might be recommended by the Council for acceptance. I believe that these proceedings have led to a better understanding between the Council and the water companies, and that by the majority of the gentlemen, who direct with much ability and devotion the business of these companies, the policy of purchase and transfer is accepted as the most satisfactory and, indeed, the inevitable settlement of this important and difficult question.

Bozier's-court, Tottenham-court-road.—The adjourned report of the Improvement Committee recommended:—

"That Parliamentary powers be sought in the session of 1897 to enable the Council to widen Tottenham-court-road by the removal of the block of buildings at Bozier's-court, provision being made in the Bill for part of the cost of the improvement to be dealt with on the same general principle as that embodied in the improvement charge clauses of the London County Council (Tower-bridge Southern Approach) Act, 1895."

Amendments to refer the matter back, and to provide for contribution by the local authorities concerned, were discussed and defeated, and the matter was then again adjourned.

Proposed New Street, Holborn to Strand.—The consideration of the scheme for the proposed new street from Holborn to the Strand was postponed.

The Council adjourned soon after seven o'clock.

THE ARCHITECTURAL ASSOCIATION SPRING VISITS:

NORTHAMPTON INSTITUTE, CLERKENWELL.

ON Saturday last the members of the Architectural Association visited the Northampton Institute, Clerkenwell. Despite the weather there was a large gathering, the party being received by the architect, Mr. Ed. W. Mountford, F.R.I.B.A., who explained all the details of construction and planning. The site is peculiar. It is a triangular island, open on all sides to streets, and having an internal triangular courtyard. The main front to the west is in St. John-street-road; the north and south sides are bounded by Lower Charles-street and Ashby-street respectively; while the eastern apex of the triangle abuts on to Northampton-square. The plan, as in all Mr. Mountford's buildings, is laid out with considerable skill in regard to the requirements and adaptation to the site. The main social entrance is in the centre of the St. John-street-road façade; on the left is placed the large hall, 100 ft. long and 67 ft. wide internally; abutting out of this at the north end is the stage, 37 ft. wide and 24 ft. deep. It is raised 5 ft. above the floor level, and slopes 1 ft. up at the back. A gallery is provided round three sides of the hall, projecting about 8 ft. at the sides and 21 ft. at the end; it is carried on light iron columns of simple design, and left uncovered. The hall, which will seat 1,500 people, is covered with a steel roof of segmental execute by Messrs. Richard Moreland & Son. It is 50 ft. internally, from the floor to the ceiling, and lined with fibrous plaster slabs executed from the architect's designs by Mr. Gilbert Seale. The outer covering is formed to a 45 deg. pitch. The hall is supplied with eight exits. Underneath are placed the dressing-rooms for the artists, lighted from St. John-street-road.

To the right of the main entrance are the administrative offices, on the first floor over these are the social and refreshment rooms, and on the second the library and reading-room. Along the Lower Charles-street front are placed the gymnasium, with gallery, and the swimming-bath. These are placed end on to each other, and are similar in size—viz., 125 ft. long and 55 ft. wide. The gymnasium is provided with galleries supported on plain cast-iron corbels. The boarding to the roof is stained green, and varnished with fire-resisting coating by the Torbay Paint Company. These two apartments are lighted by a continuous lantern of Rendle's glazing. Along Ashby-street to the south are placed the workshops, to be five stories in height. The rooms average 30 ft. by 20 ft., and 14 ft. in height in the clear.

The triangular courtyard will be a feature of the scheme; it is 90 ft. wide at its base. The lavatories carried across near the eastern apex are made accessible from two sides, and are raised on piers connected by arches at first-floor level, so as not to interfere with the ground space. The courtyard will be laid out as a garden for use on summer evenings. In the eastern angle of the court is formed a circular stair leading to all the floors. The floors throughout have been constructed of coke breeze and cement 7 in. thick, steel joists 6 in. by 2 in., supplied by Messrs. Dorman, Long, & Co., and placed 3 ft. apart. The floor boards, 1¼ in. thick, are nailed direct without the use of fillets. The stairs are granolithic. The building is to be heated by steam, for which there are to be

two boilers, a Babcock's tubular and a Wilcox type. The clock is corbelled out on oak brackets from the tower in the Ashby-st front. It will be 6 ft. in diameter, and constructed as an object-lesson to the trade for which Clerkenwell is famous. 4,000*l.* will be laid out in plant, which will provide electricity at 2½d. per unit, instead of 7d., which was asked by the local company.

Externally, the buildings form one of the most effective groupings yet done by Mr. Mountford, and the whole design is characterised by breadth and dignity of treatment, the planning of the roofs on an awkward site being specially admired. Red bricks and Monk's Park stone are used for the walls, and the roofs are covered with green Westmoreland slates, the eaves being marked with a boldly-designed cornice. Mr. Gard acted as the clerk of works, and Mr. W. Wallis is the builder.

After partaking of tea provided by the architect, the party dispersed after a hearty vote of thanks to Mr. Mountford for explaining the details of his building.

ARCHITECTS' BENEVOLENT SOCIETY.

THE annual general meeting of the subscribers and donors to the funds of this Society was held on Wednesday afternoon in the Council-room of the Royal Institute of British Architects, Sir Arthur Blomfield occupying the chair in the unavoidable absence of the President, Mr. F. C. Penrose.

The minutes of the last meeting having been read and confirmed, Mr. Percivall Currey, Hon. Secretary, read the report of the Council, from which we make the following extracts :—

"It was the pleasant duty of the Council of the Architects' Benevolent Society in their last report to congratulate the contributors to its funds on the Society's having attained during the year 1894 its greatest degree of financial prosperity since its foundation, the amount received in subscriptions being largely in excess of any previous year. In submitting their forty-sixth annual report the Council have, therefore, considerable satisfaction in stating that the favourable position at which the affairs of the Society had then arrived has been maintained, with a slight improvement in regard to both donations and subscriptions, during the year on which they have now to report.

While, however, having this cause for satisfaction, the Council would at the same time direct attention to the fact that a greater demand has been made upon its resources than in former years, and that although the sum of 413*l.* 15s. was the income derived from subscriptions during the year, 70*l.* was paid to pensioners, and 604*l.* to applicants for grants, together making a total of 674*l.* (as against 589*l.* in 1894) distributed in relief. Large as this amount would seem, the Council are convinced that a smaller sum would not have afforded adequate relief to the persons whose wants were brought under their consideration, there being forty applicants for grants, out of which, after proper investigation and recommendation, assistance was afforded to thirty-six.

The Council would take this opportunity of stating that their grounds for satisfaction in the affairs of the Society are based on the increase of the amount received in subscriptions, and while tendering their cordial thanks to those who are already supporters of the Society, they are assured that the amount received in subscriptions for the year, £407 4s., does not represent what should be the desire of the successful members of the architectural profession in behalf of their less fortunate brethren, who, in the prime of life, through illness, or in old age, through failing powers, may be left in a condition of want; or in behalf of the widows and children of architects suddenly left more or less unprovided for. The Council venture to hope, therefore, that the list of subscribers may be materially augmented during the present and future years.

With regard to the capital account, a balance of 169*l.* 8s. 8d. having been brought over from 1894, an investment was made in the purchase of 100*l.* Caledonian Railway Four per Cent. Debenture stock at a cost of 143*l.* During the year the sum of 91*l.* 7s. (as against 85*l.* 14s. in 1894) was received in donations, so that the balance in the hands of the bankers at the credit of the capital account on December 31 last was 117*l.* 15s. 8d. . . . .

The Council have to deplore the heavy loss which has been sustained by the Society, as, since the issue of the last report, many of its oldest and warmest supporters have passed away. Chief among these were the late Mr. Ewan Christian, who, besides being an annual subscriber of 4*l.* 4s., had contributed in donations 163*l.* 11s., and Mr. Thomas Cundy, one of the trustees, who was an annual subscriber of 5*l.* 5s. The decease is also, with great regret, recorded of Mr. E. P. Loftus Brock, Mr. R. C. Bexter Mr. T. Chatfeild Clarke, Mr. Henry Clutton, Mr. H. G. W. Drinkwater, Mr. Arthur Lett, Mr. D. Cubitt Nichols, and Mr J. P. St. Aubyn.

Five meetings have been held by the Council during the past official year. The pension of 20*l.* which was awarded last year having again become vacant through the death of its recipient, the vacancy was announced in the professional papers, and the pension awarded to one of the four persons who applied. It should also be mentioned that Mr. J. G. Finch Noyes, who was elected co-auditor with Mr. W. Hilton Nash at the last annual general meeting, being unable to act on account of absence abroad, Mr. John Hebb kindly undertook, at the request of the Council, the duties in his stead. . . . .

The balance-sheet and income account for the year ended December 31, 1895, duly audited by Mr. W. Hilton Nash and Mr. John Hebb, are herewith submitted.

The Council, in closing this report, desire to express the indebtedness of the Society to the Royal Institute of British Architects for the use of rooms in which to hold their meetings, to the Secretary (Mr. William H. White), and to the officers who by their invariable courtesy have materially assisted the transaction of the business of the Society."

Mr. Arthur Cates then read the statement of accounts and balance-sheet, and on the motion of the Chairman the adoption of the report and balance sheet was agreed to.

Mr. Cates said that as the result, in one day, of a letter of appeal which their President, Mr. F. C. Penrose, had written to members of the profession, pointing out the usefulness of the Society, 42*l.* 16s. had already been received in donations, and in addition to that they had received 29*l.* 2s. in fresh annual subscriptions. That was highly satisfactory, and he hoped that those gentlemen who had received the letter of appeal would liberally respond to it.

On the motion of Mr. H. L. Florence, seconded by Mr. G. Scamell, it was agreed that a vote of thanks be passed to the retiring members of the Council, Messrs. Thomas Blashill, Sydney Smirke, Wm. Grellier, E. B. I'Anson, and E. H. Martineau.

Mr. H. H. Collins moved, Mr. W. Woodward seconded, and it was agreed, that the following gentlemen be elected members of the Council for the year of office 1896–97:—Mr. T. M. Rickman, Mr. R. St. A. Roumieu, Mr. J. T. Wimperis, Mr. Thomas Harris, Mr. H. C. Boyes, Mr. Wm. Kidner, Mr. Geo. Scamell, Mr. Zeph King, Mr. Geo. Inskipp, Colonel R. W. Edis, Mr. Arthur Crow, Mr. E. A. Gruning, Mr. G. T. Hine, and Mr. W. Hilton Nash.

It was agreed that Mr. Arthur Cates be accorded a hearty vote of thanks for his services as hon. treasurer during the past year, and that he be re-elected to that office for the ensuing year; that a vote of thanks be accorded to Mr. Percivall Currey, and that he be re-elected as hon. secretary for the coming year; and that thanks be accorded to Mr. W. Hilton Nash and Mr. John Hebb for their services as auditors during the past year, and to the Royal Institute of British Architects for the use of the rooms in which to hold meetings and for office accommodation.

Mr. J. Macvicar Anderson was elected trustee in the place of the late Mr. Cundy, and Messrs. W. Woodward and Henry Hall as hon. auditors.

In proposing a vote of thanks to Sir Arthur Blomfield for presiding and for taking the chair at very short notice, Mr. Cates said that their President would have been amongst them but for his departure for Athens to take part in that important Commission to advise as to the steps to be taken for the preservation of the Parthenon and the monuments on the Acropolis, which had, it was supposed, been injured in the earthquake of 1894. That was an appointment of the highest importance, and it was a pleasure to know that they had an architect of such ability and eminence as to be one of the three European architects appointed by the Greek Government.

Sir Arthur Blomfield briefly replied, and the meeting terminated.

SANITARY INSPECTORS' ASSOCIATION:

ANNUAL DINNER.

THE thirteenth annual dinner of this Association was held at the Holborn Restaurant on Saturday last, when the President of the Association, Sir B. W. Richardson, presided over a large company, which included Gen. Moberly (Vice-Chairman of the London School Board), the Ven. Archdeacon Sinclair, Mr. Sheriff Cooper, Mr. Councillor Baker (ex-Mayor of Maidstone), Mr. Wyke-Bayliss, Professor D. E. Hughes, Mr. Crump, Q.C., Rev. J. W. Horsley (Chairman of the Newington Vestry) Rev. J. H. Scott, Rector of Spitalfields, Major Wenborn (Shoreditch Vestry), Dr. Shirley Murphy (L.C.C.), Dr. Fletcher Little, Dr. Downes (Local Government Board), Dr. Louis Parkes, and over 200 other guests.

In opening the after-dinner proceedings with the loyal toast, the President called attention to the vast improvements that had marked her Majesty's reign, the last and most important of all being the great progress made by sanitation.

The Rev. J. H. Scott and Major Wenborn responded to the earlier toasts proposed respectively by Mr. Crump, Q.C., and Dr. Arthur Downes, and then the President gave the toast of the evening, "Success to the Sanitary Inspectors' Association." The Association had, he said, become a very considerable body, and no country in the world possessed such a body of sanitary officers as they were. The medical officers of health required subordinates to look into the dark places of the earth to find out the causes of disease. There was no reason why there should be any disease in the land, for we had only to take care of those who lived and to take proper measures for the disposal of those who were dead. The sanitary inspectors were the men who looked after everything throughout the land and even the lower creation, and if they did their duties as they were now doing, the public would recognise in them the men to whom they would be indebted for many practical benefits. The world could not now do without a body of sanitary inspectors. They were not yet properly before the nation—they were an underpaid set of men who ought to be receiving three, four, and even five times what they were then receiving, and they knew that they would in time be appreciated. "You must hold together," said the President in concluding, "and you will become the greatest, or one of the greatest, combinations of the country. If you to yourselves be true you cannot then be false to any man."

Dr. Fletcher Little proposed "Local Government," and Mr. Councillor Baker (Maidstone), in responding, expressed an earnest wish to see the sanitary inspectors in connexion with all District Boards become permanent officers. The local governors were themselves a shifting body, but their inspectors ought to be a fixed body. He had himself, while Mayor of Maidstone, become so convinced of the necessity for this after his visit to the Worthing Conference, that he had proposed, on his return to Maidstone, to make the sanitary inspector in his borough a fixed officer of the Corporation. The speaker strongly approved of the project of sanitary inspectors to establish a superannuation fund on the lines of that in force among the police.

The toast of "Education," proposed by the Rev. J. W. Horsley and responded to by General Moberly, having been disposed of, the President gave "Science and Art," to which Professor Hughes responded for Science, and Mr. Wyke-Bayliss for Art.

Archdeacon Sinclair then proposed "The President." For Sir B. W. Richardson, he said, more than to any other man at present living, the present generation owed a debt of gratitude for the improved conditions under which it lived.

The President heartily acknowledged the compliment.

Dr. Shirley Murphy was called upon to respond to the toast of "The Visitors," proposed by Mr. Lewis Thomas. He said that if they took so simple an illustration of vital statistics as the death rate of the last few years they would find much that must be gratifying to Dr. Richardson. The saving of life in London alone, during the last four, years was 1,040 when calculated at the same rate as in the previous ten years. He recommended sanitary inspectors not to confine their ideas of their duties to the reconstruction of walls or the suppression of foul drains, but to take a broader view of their duties.

The toast of "The Executive" was proposed by the Rev. G. Martin, and responded to severally by Mr. H. Thomas (Chairman of the Council), Mr. C.W. Raymond (Hon. Treasurer), and Mr. E. Tidman (Hon. Sec. and Editor of the "Journal"). Mr. Tidman gave a summary report of the proceedings of the year, which had been a most successful one. They had got rid of the trouble about the branches in the provinces. At almost every meeting of the Council they had had applications from five or six new branches to join. They had received a communication from Sir R. Rawlinson expressing the opinion that the Association should be represented on the Local Government Board, and also in Parliament. The superannuation scheme had not been taken up as a Government measure, but they hoped to be able to do it themselves. In the immediate future, they proposed to take up the Examination Scheme, the Library, the new

Building, and other measures in the same connexion. Before sitting down, Mr. Tidman produced a portrait in oil of the first President of the Sanitary Inspectors' Association, the late Sir Edwin Chadwick. He, with the co-operation of one or two friends, had purchased the portrait, and they now asked the President to accept it on behalf of the Association.

In proposing a toast to "The Press," coupled with the name of the representative of the *Builder* and the Editor of the "Journal," Mr. H. Alexander stated that the increase in the Association during the last nine months had been 150 members.

ARCHITECTURAL SOCIETIES.

THE SHEFFIELD SOCIETY OF ARCHITECTS AND SURVEYORS. — The ordinary monthly meeting of the members of this Society was held on Wednesday, at the School of Art, Arundel-street. The chair was occupied by Mr. C. Hadfield, President. An instructive and interesting lecture on "Axiality" was delivered by Mr. Hugh Stannus, who is a native of Sheffield, now lecturer at South Kensington. The lecture was illustrated by numerous drawings and blackboard diagrams. A cordial vote of thanks was passed to Mr. Stannus. Messrs. J. B. Mitchell Withers and E. Winder, jun., were elected auditors of the treasurer's accounts for the year. It was announced that the exhibition of the prize drawings of the Royal Institute of British Architects will take place in the Montgomerie Hall from the 18th to the 22nd inst., to be open to the public.

ENGINEERING SOCIETIES.

THE INSTITUTION OF JUNIOR ENGINEERS.—On Saturday, the 29th ult., the members of this Institution visited, by invitation of the directors, the National Skating Palace, to inspect its engineering features, the party numbering over 150. They were shown over by Mr. A. H. Tyler, Mr. Cooper, and other gentlemen. The two main refrigerating engines of this installation were supplied by Messrs. J. & E. Hall, and are each capable of making 25 tons of ice per twenty-four hours. The electric light engines, by Messrs. Crompton & Co., are of the inverted vertical compound type, and indicate 57-h.p. at 250 revolutions per minute. Three Davey-Paxman 40 nominal horse-power boilers, of the locomotive type, supply steam. The water is obtained from a well 353 ft. deep, which was sunk by Messrs. Tilley & Sons. The steam from the main engines is condensed in jet condensers worked by the engines themselves, and that from the electric light engines, by an evaporative condenser situated on the roof, the air-pump being worked by an independent engine. The refrigerating engines, which are of the compound tandem variable expansion type, are worked upon Messrs. Hall's carbonic acid system—cooling a solution of chloride of calcium by the evaporation of the liquefied gas. The brine is circulated by centrifugal pumps through the entire rink floor, consisting of a series of shallow tanks, upon the upper surface of which the ice is formed. The actual skating area of the rink is 11,117 square feet.

COMPETITIONS.

LIVERPOOL MUSEUM EXTENSION SCHEME.—Mr. Aston Webb has been appointed assessor in the competition for extending the Museum buildings to Byrom-street, Liverpool.

MODEL LODGING-HOUSE, ABERDEEN.—Mr. George Simpson, Town's Architect, Leith, has been appointed professional assessor in connexion with the competitive designs for proposed corporation lodging-house, Aberdeen. It is understood that alternative plans will be asked for, giving accommodation for 200 and 250 lodgers respectively.

GOLF CLUB HOUSE, ST. ANNE'S-ON-THE-SEA, LANCASHIRE. — The Committee of the Lytham and St. Anne's Golf Club met on the 4th inst. to receive the report of their architectural adviser upon the designs submitted in this competition, and unanimously resolved:—"That the Council of this club having received the report of Mr. Charles Heathcote, architect, have decided to award the three premiums as follows: First, 'Fate,' by Messrs. Woolfall & Eccles, 60, Castle-street, Liverpool; second, 'Recreation,' by Messrs. Cheers & Smith, Blackburn and Twickenham; third, 'Expert' (Treatment A), by Messrs. Woodhouse & Willoughby, 100, King-street, Manchester; and they further consider 'Jewel' as fourth in order of merit," by Mr. J. D. Harker, 78, King-street, Manchester.

ARTISANS' DWELLINGS, PLYMOUTH.—The Corporation of Plymouth appear to be taking a very unfair course towards the architect Mr. Locke Worthington, whose plans were selected in the competition for artisans' dwellings on the How-street and Looe-street area. Because it was found that the plans would have to be modified in execution, they propose to pass over the premiated architect and put the buildings into the hands of the Borough Surveyor—in other words, they make him a present of Mr. Worthington's scheme as the basis for an amended one of his own. This is most unfair to the architect, especially when we consider (what most official bodies do not know) that all competition plans, almost without exception, have to be modified in execution.

CARPENTERS' HALL LECTURES.

PROFESSOR BANISTER FLETCHER lectured at the Carpenters' Hall on Wednesday evening on "A Nation's Architecture." The Chairman of the Carpenters' Company (Mr. Edward Smith) presided.

The Lecturer said that as he stood recently among the glorious ruins on the Acropolis Rock of Athens he was impressed with the thought that that great heroic nation was only truly great whilst architecture lived with it. Formerly it was thought that Grecian architecture was the invention of the Greeks, but they now knew that all the ideas were borrowed from other countries. Illustrations of Egyptian and Assyrian architecture were then given to show how the Greeks borrowed ideas from these sources, but so developed and refined them as really to create a distinct style of architecture. In the Greek work they found beautiful refinement of the whole building, and beautiful refinement of the parts. There was, for instance, the swelling or entasis of the columns which Vitruvius considered to be the result of some refined perception of the Greek, relative to the apparent diminution of objects, as their distance from the eye was increased, which he desired to correct by this means. Two other illustrations of the efforts of the nation to correct optical effects were—(1) the columns at the angles of buildings were made slightly greater in diameter than the other columns; while (2) the remarkable horizontal upward curvature of the steps, which, though small, corrected the tendency in horizontal lines to appear to sink in the middle. The efforts of the Greeks to obtain full advantage of their sunny climate were successfully shown in the flutings of their columns. They gave a greater play of light, and were a considerable improvement on the Egyptian, which did not continue all around the column, but had four broad bands at equal distances round the drum, the flutings being limited to the spaces between. Passing from the general outline to the mouldings, they saw again consummate art and refinement, even in these small details, and the careful consideration of the climate, and the material they used. To show this was not mere evolution he might mention that this refinement died with Grecian art, for the next people—the Romans—adopted the coarser method, all their mouldings being struck with the compass, while the Grecian were probably drawn by hand. The lecturer then exhibited a large number of direct photographs of monuments and of works of the sister arts. The style of the Greeks, he said, was one specially adapted to their country, as all architecture should be. In the zenith of their power they cared little for luxury or appearance of their own dwellings, but they cared immensely for the splendour and magnificence of their temples. His thought, when standing on the Acropolis was—could not his own country be urged to some such work? We boasted, with some justice, of being the greatest nation that the world had ever seen, and yet we possessed no architecture of our own—no national architecture. What was the cause? Was not that cause embodied in the Napoleonic taunt, and might they not therein find the true path to architecture? Just as that taunt brought out hidden qualities and enabled them again to become conquerors, so now if they could but recognise the fact that architecture was not a living force with them, as it was with the nation's architecture they had been examining, might they not make it so? The education of the public taste must be done gradually, and they must first of all learn to love that which was in good taste and harmony. In conclusion, he asked those present to remember that no new style was likely to be evolved unless the nation was in earnest; and if it were, not only would the people have a new source of great and pure pleasure, but the prosperity and glory of their country would be enhanced; they might then obtain, as the Greek of old, an architecture of their own.

The Student's Column.

CARPENTRY AND JOINERY.—X.

SCAFFOLDING, STAGING, AND GANTRIES.

SCAFFOLDING is a temporary structure placed alongside a building in order to facilitate its erection by supporting workmen, and raising materials during the construction, or for the repair of buildings.

Possessing a temporary character, the method of its construction is often likely to be overlooked by the student, but as a subject it is very interesting, and will repay him to give it the attention it deserves.

The various types of scaffolding, staging, &c., may be classified as follows:—

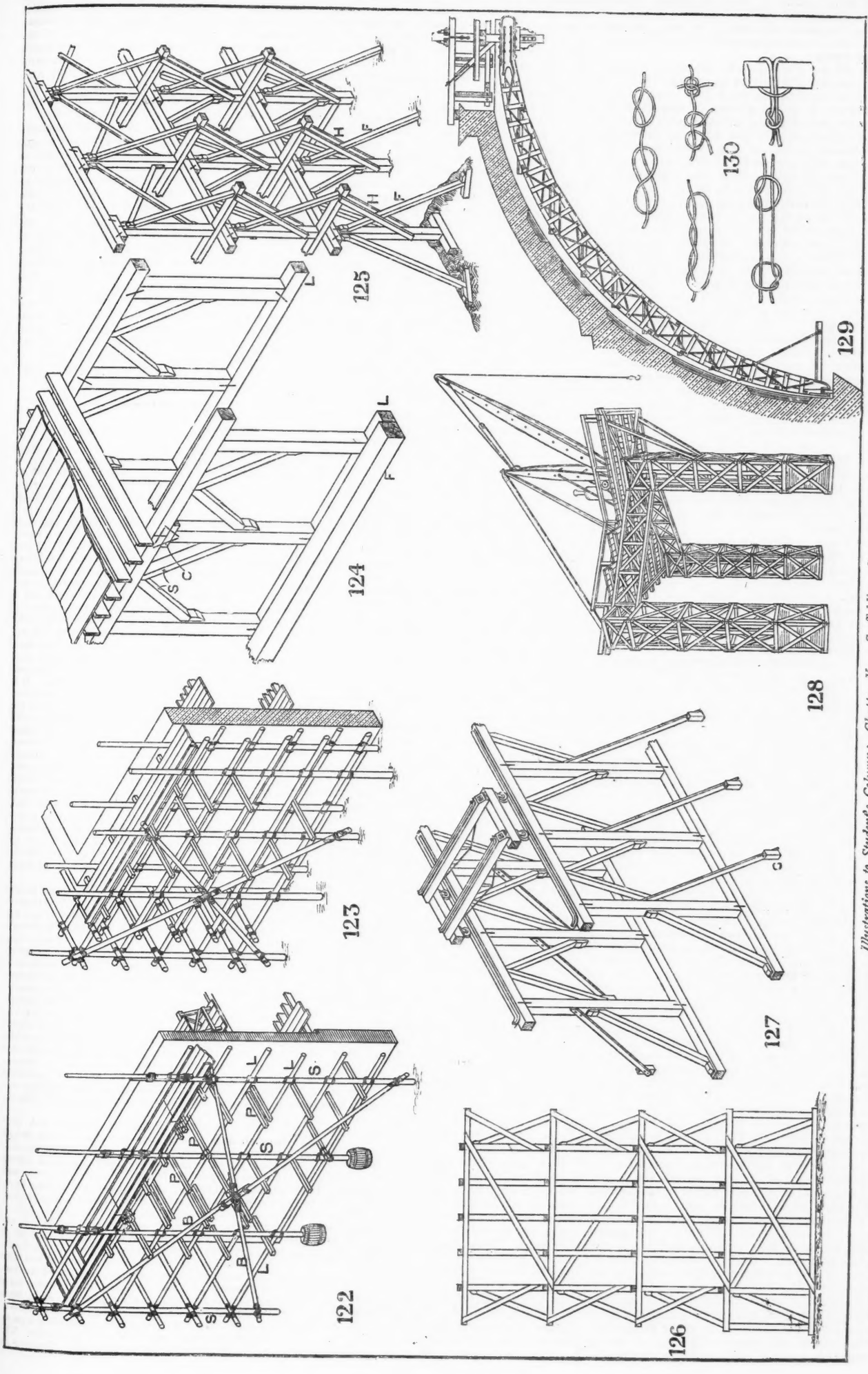
I. *Bricklayers' Scaffolds*
II. *Masons' Scaffolds.*
III. *Staging.*
IV. *Gantries*—*a.* The gantry proper; *b.* The gantry to support travellers.
V. *Derrick Cranes.*
VI. *Other Special Forms.*

I. *Bricklayers' Scaffolds.*—The ordinary bricklayers' scaffold is the one with which the student is most familiar, and fig. 122 shows such a scaffold, in isometric projection in order that it may be more easily understood. S are the *standards* or upright poles, generally of fir; these are from 20 ft. to 50 ft. high, and from 5 in. to 8 in. in diameter at the lower or butt end. Smaller sizes—as, for example, those having a diameter of 2½ in.—are termed "rickers," and are generally to be obtained about 22 ft. long. These standards are usually fixed firmly in the ground about 4 ft. 6 in. from the face of the wall it is proposed to build, and are generally placed from about 10 ft. to 12 ft. apart.

In high building, where greater length is required, two standards are lashed together, butt to tip, and tightened up with wedges. In certain cases where it is inconvenient to place these standards beneath the ground—as, for instance, where it is not desired to disturb the pavement in a town—they are placed in tubs filled with earth, as shown to two of the standards in the illustration. To these standards, on the side nearest the wall, are lashed *ledgers* L, or horizontal runners, parallel to the wall, and from 3 ft. 6 in. to 5 ft. above each other; they are bound to the standards by rope, and tightened by wooden keys or wedges introduced between the rope and the standards. These ledgers answer the double purpose of bracing the standards together at intervals in their height and of supporting cross pieces stretching from them to the wall. The latter are called *putlogs*, and are marked *P* on the illustration. They consist of squared timber, usually birch, above six feet long and of 4 in. by 3 in. scantling; they are placed about four feet apart, one end resting on the ledger and the other inserted in the wall by means of a hole left for the purpose by omitting a brick header. These putlogs support the scaffold boards, usually 9 in. by 1½ in. thick, with edges bound in hoop-iron. The scaffold boards are butted at their heading joints, the putlogs, where these occur, being placed only about 4 in. apart. On each staging, what are known as guard boards are placed as shown to prevent the materials or rubbish falling on to the ground below.

The scaffolding, as such, is now complete, but the whole is further stiffened and held together by long poles or *braces* B, lashed diagonally across every three or four standards. It will be understood that the scaffolding is raised as the building proceeds and is therefore supported largely by the wall. When the wall has reached a certain height above the platform upon which the workmen are engaged, which is generally about 4 ft. 6 in. or 5 ft., as this is the greatest height that the average man can work with ease, another row of ledgers is lashed to the standards, fresh putlogs are inserted into the holes where brick headers have been omitted, and the scaffold boards are raised from the old to the new level. Meanwhile the ledgers and putlogs are left in position in order to steady the scaffold and are not taken out as a rule till the end of the operations.

It should be borne in mind that scaffolds of



Illustrations to Student's Column: Chapter X. Scaffolding, Stagings, and Gantries.

122. Bricklayers' Scaffold.
123. Masons' Scaffold.
124. Gantry.
125. Staging.
126 Staging used for the Britannia Bridge.
127. Gantry to support a "Traveller."
128. Derrick Crane.
129. Scaffolding used in the Restoration of the Pantheon Rome.
130. Various Forms of Knots.

this description should not be unduly loaded, in such a manner as to press too heavily on the newly-executed work.

Fig. 130 shows the method to tying various knots used in scaffolding which will be of interest to the student.

II. *Masons' Scaffolds.*—As the name implies, this form of scaffold is used by masons in the construction of stone ashlar walling, or indeed in any case where it is not possible or convenient to insert the ends of putlogs into the wall. Fig. 123 will sufficiently explain that this form consists of two frames parallel to each other, one about 4 ft. 6 in. from the face of the wall, as in a bricklayers' scaffold, and the other about 9 in. to a foot from the face of the wall to be built.

The object of this inner frame is to support the ends of the putlogs; as it is not convenient to leave holes in the face of a stone wall, of ashlar facing, for their insertion as is done in a brick wall. Where openings occur in the wall, as at windows, advantage is taken to secure the frame to the wall itself in order to secure and steady the scaffolding; otherwise this form relies on its own rigidity, and is even called in some parts an independent scaffold. The general construction of such a scaffold should be stronger than in a bricklayers' scaffold, for the reason that heavier materials are used at one time. The standards are therefore placed closer together, and are more firmly braced. The most ordinary forms have now been touched upon, but in larger and more complicated structures, stronger and heavier erections have to be designed.

III. *Staging.*—According to Tredgold, the term "gantry" is frequently applied to a structure which should be known as a staging, but he states that the former term should only be applied to a staging which is one story in height and carries a "traveller," and in this we shall follow him.

In buildings which have to go a certain height, it is evident that some type of construction, heavier and stronger than ordinary scaffolding, may have to be employed.

Such a construction, known as a *staging*, is shown in fig. 125. A beam of timber is placed across the head of each standard, and projects some 9 ft. or 10 ft. beyond it, at right angles to the direction of the runners on which it rests. This piece is called a "footing-piece," and serves the same purpose as the "foot-block" to a one-story gantry, as will be seen, except that it will be supported by the strut H. Such struts are usually in two pieces, in order that the strut F may pass between them.

The standards of the upper tiers should always be placed over those in the lower to prevent cross strains in the horizontal timbers, and diagonal bracing is frequently employed in the upper tiers, as shown. Staging has also to be largely employed in the construction of bridging and viaducts of great height. In such cases they are generally about the height of the springing of the arch, and are used to support the requisite centering or as a platform for connecting the different sections of girders, &c. The example shown in fig. 126 exhibits the same principle as that adopted for constructing the land tubes of the Britannia Bridge in 1850.

IV. *Gantries.*—Gantries are necessary where heavy stones or other building materials have to be lifted, and in cases where ordinary scaffold poles would not be safe; they are also used for supporting heavy machinery. Gantries are much used in London and other large towns, as may be noticed by the attentive student in his wanderings, and much can be learned by practical observation and sketching such examples as come before one. In spaces in front of a new building they are often placed over the public footway and used as a store, or yard, from which the building operations are directed, and it is often on such elevated constructions that the clerk of works and foreman's offices are placed. (*a*) The gantry proper is shown in Fig. 124, and is a structure commonly used and suitable for the uses named above. It will be seen that it consists of two frames formed of squared timber, about 10 ft. apart, and of scantlings from 6 in. to 12 in. square. The inner frame should be kept about 1 ft. from the face of the proposed wall. The frame is composed of *sleepers*, L, laid on to the ground, and protected from carriage traffic by a stout piece of timber, called a *fender*, F. Upon the sleepers are placed the uprights secured by iron dogs. On the top of the uprights are placed pieces of timber or heads, which span from upright to upright, and are "dogged" in a similar manner to the sleepers. In order to distribute the pressure and decrease the bearing, the uprights are provided with a rough treatment of bracket capital as *C*. The weight on the whole structure is also distributed by struts *S*, usually about 5 in. by 5 in., pressing against each other at the upper end, and supported on cleats spiked to the uprights. The sectional area of these struts, in order to be effective, should not be less that half that of the uprights. The whole framework supports a platform, either constructed like an ordinary floor with joists and boarding, or by deals laid flat and touching each other. In these constructions the timbers should be weakened as little as possible, therefore the use of boltholes, notching, mortising, or otherwise cutting into the timber should be avoided. It is also necessary that the deterioration of the value of the timber should be reduced to a minimum. On account of both these reasons the several pieces are put together with dog irons (fig. 105, article on shoring), which are pieces of square or round iron about ⅜ in. in diameter, having their ends pointed and turned down at right angles. They are driven well home, and can be removed with little injury to the wood. (*b*) A gantry to support a traveller is also affected by the conditions under which it is to be used. In this case the staging is not for the purpose of storage and manipulation of heavy material, but to provide a pair of rails along which a "traveller" may run. For this purpose the spacing is kept clear, the framing being connected at its ends; the intermediate portions being independent of each other. This is carried out, as shown in fig. 127, by keeping the struts outside the frames, the rest of the construction being similar to that already described. The lower end of the struts should always be fixed to foot blocks, as at G, by which they are prevented from sinking into the ground. The traveller itself is constructed of two trussed beams placed at their extremities on two pieces of timber which rest on wheels running on rails extending the length of the framing. The mechanism of the traveller need not be touched upon here.

V. *Derrick Cranes.*—Derrick cranes are being largely used in England at the present time, both on account of the diminution of labour which can be effected by their use and the time which can be saved. The student will not fail to observe those he may see in use, the following description is only intended as a general guide to the principles on which they are designed. Fig. 128 shows the timber towers for one of these derrick cranes. There are three in number, distributed so as to form an equilateral triangle on plan; they are placed on platforms of wooden beams which serve as a base. The towers are usually about 6 ft. square, consisting of four uprights about 9 in. square in one piece or of deals bolted together, these are connected by cross pieces of, say, 9 in. by 3 in., about 6 ft. or 7 ft. vertically distant from each other, the bays thus formed are stiffened in the usual manner with cross braces 7 in. by 2 in. bolted to the uprights as shown. The bases of the towers are filled up with bricks or other heavy material to a weight at least double the load to be raised. The derrick is placed on one tower, which is connected with the other two at their upper ends by means of trussed beams, as shown, and the two towers (other than the one on which the derrick rests) are connected by a single baulk of timber strutted if necessary as shown. The derrick crane itself consists (see illustration) of sleepers, mast, jib, and stays, and it is anchored to the tower by means of chains which are passed over the sleepers on the top of the staging and connected to the platform at the base of each tower. On referring to the illustration, fig. 128, it will be seen that the mast, the upright member, may be formed out of one piece of timber or of pieces strutted apart and braced. It is placed on a pivot at top and bottom, so that it may move in all directions. The jib supports the masses to be raised. It is attached to the mast at its lower end by a hinged joint, thus allowing freedom of action. At its outer end is a wheel, over which the chain to raise the material, passes.

The angle of inclination of the jib can be altered by a chain in this portion. The sleepers lie on the stagings, and are connected to the lower ends of the mast by a swivel joint. The stays are joined to the mast at its upper end by a swivel joint, and to the sleepers at their lower end by a link-joint. These sleepers are anchored to the staging to keep the mast in position when the weights are put upon the derrick crane.

In some parts of the country, and especially on the Continent, buildings are erected without scaffolding, the work being performed from the inside, and the men supported on platforms raised on the floors of the building itself.

VI. *Other Special Forms.*—Scaffoldings and stagings have to be designed for all purposes and the architect should not be above advising on these points, as Sir Chas. Barry designed the scaffolds for the Houses of Parliament. Fig. 129 shows the revolving scaffold used for the repair of the dome of the Pantheon at Rome, and is an example of the skill of the Italians, who are especially clever at this kind of work. The scaffolds used in the erection of domes and roofs of considerable span consist of nothing more than a series of standards, with diagonal braces and struts.

The scaffoldings adopted in some of the recent large exhibitions, such as Paris and Chicago, have been very ingeniously devised in regard to saving of labour and economy of material; but the subject of their construction can hardly be dealt with here. Especially in regard to the roofs were the scaffoldings worthy of study, the roofs being built in sections, the scaffolding was placed on wheels and moved along the length of the halls, as it was required; all the bays being erected by means of one section of scaffolding. Continental customs vary considerably from English methods, and in Greece the writer has seen scaffolding in which ladders are not used, each story being reached by inclined planes which the labourer can walk up. Each special case has to be designed to fit its purpose, and the student having grasped the main properties of scaffolding, can apply them with judgment to any particular problem.

GENERAL BUILDING NEWS.

THE RESTORATION OF PETERBOROUGH CATHEDRAL.—Mr. Pearson, R.A., has made a report upon the condition of the west front of Peterborough Cathedral. He says that, upon looking over the report of May last year in the light of recent investigations, he finds that there is little or nothing in it to alter, either in the opinions therein expressed or in the recommendations made. That report describes very much the actual condition of the west front as it can now be seen from the scaffolding recently erected to the west front, and it certainly did not overstate the ruinous conditions of the major part of the masonry above the great arches, not so much due to any settlement as to effects of time, the want of timely repair, and the action of the weather. The great settlement westward and downward of the west front occurred at a very early date, prior, at any rate, to the fifteenth century, and since that time no further movement of any importance beyond a slight settlement has taken place. It is the opinion of the architect that the consolidation of the core of the walls from the springing of the arches upwards by grouting in with cement, with the renewal of stones which are completely perished, and the filling up of the gaping joints, are matters of urgent necessity to prevent the further ravages of the weather. But as regards the general structure, the west front of the cathedral is practically what it has been for many centuries, and, in the absence of any influences other than those now in operation, there is no reason for expecting any further movement. Mr. Pearson concludes his report by stating that he is happy to be able to advise that no structural works need be undertaken beyond the precautionary measures recommended in his report of May last.

PUBLIC LIBRARY, ST. GILES'.—The Lord Mayor has just opened the Public Library in New Oxford street. In the basement of the building are the reading-room for boys, the bookbinders' workshop offices for the library assistants, and storage-room. The ground-floor is taken up by the reading-room which has a superficial area of 820 ft. On the first-floor are situated the lending-library, the magazine-room, and the librarian's office, whilst the reference library is placed over these rooms on the second-floor. The architect of the building was Mr. W. Rushworth, and the work has been carried out by Mr. T. Boyce. The building, throughout the public part, has fireproof floors and concrete stairs, and the fittings, which are of English oak, are by Messrs. Drew & Cadman, of High Holborn. The electric light has been adopted throughout the building, the fittings and installation being supplied by Messrs Pontifex & Co.

FREE LIBRARY, BALSALL HEATH.—A new branch Free Library has just been built at Balsall Heath. The new branch is situated in the Moseley-road, opposite Lime-grove, and has been erected to the designs of Messrs. Cossins, Peacock, and Bewlay, architects, Birmingham, the builder being Mr. R. Fenwick, also of Birmingham. The building is in the English Renaissance style, and is built of buff terra cotta and "sand-stock" bricks. It has a frontage to Moseley-road of 90 ft., with a depth of 60 ft., and it stands 7 ft. back from the footpath. The main body of the building is divided into three bays, each having a five-light mullioned window surmounted by a pedimented gable. At the lower end of the building is a clock tower 80 ft. high, with four illuminated dials. The main entrance is a the base of the tower, and is surmounted by a gable, with the Birmingham coat of arms in bas-relief. The roof is of green Westmorland slates. Entering by

the vestibule, the large reading-room is on the left, quarters being provided for the staff on the right. The reading-room is 63 ft. by 57 ft., with a height of 25 ft. It is in the form of a nave, with an aisle on either side, the arches being carried by granite piers. The ceiling, which is divided into bays by wood beams, is flat, and has a large roof light. Shelf accommodation for some 10,000 books is provided along one side of the room, and at the back of the serving counter, whilst in the centre will be a number of tables and reading stands. A room has also been provided for the chief librarian, with a window so arranged that complete supervision of the library may be easily secured. The furniture has been specially designed by the architects.

BUSINESS PREMISES, ABERDEEN.—A new building has just been erected for Messrs. Lawson, Turnbull, & Co. in Mealmarket-street. The new building will have a frontage to Mealmarket-street of 77 ft., and a depth of 100 ft. The building consists of two flats, the ground floor being occupied by a lorry entrance at either side and offices in the centre. The building is roofed in with three spans, the centre span being glazed with Helliwell's patent glazing. The building has cost about £4,000; and the following were the contractors:—Mason, Messrs. James King & Co.; carpenter, Mr. John Henderson; plumber, Mr. John F. Anderson; plasterers, Messrs. Stephen & Gibb; slater, Mr. Charles Maitland; ironwork and fitting up lifts, Mr. George Bisset; painters and glaziers, Messrs. Barron and Sons. The architect was Mr. John Rust.

HALL AND VESTRY, DUNDEE PARISH CHURCH.—A new hall and vestry is to be built in connexion with the East Parish Church, Dundee. The building will occupy the site immediately to the north of the church, and replace the present vestry. The hall will be 40 ft. long and 18 ft. 6 in. wide, and will be seated for about 120 persons. The vestry will measure 18 ft. 6 in. by 13 ft. 6 in., while, in addition, there will be a ladies' retiring-room and lavatory accommodation. The estimated cost of the building is 1,400*l*. Mr. W. Alexander is the architect.

GIRLS' LODGING HOME, ANCOATS.—A Girls' Lodging Home has just been opened in connexion with the Girls' Institute, Mill-street, Ancoats. The new Home furnishes accommodation for twelve girls and a matron, with four bedrooms and a sitting-room for workers in the Institute. The architects are Messrs. Horton & Bridgford, of Manchester, and the contractors Messrs. Burgess & Galt, of Ardwick.

M'EWAN HALL, EDINBURGH UNIVERSITY.—Through the generosity of Mr. William M'Ewan, M.P., Edinburgh University has been provided with an Academic Hall. The architect of the Medical School, Dr. Rowand Anderson, was entrusted with the design of the hall, which is at the east end of the Medical School in Teviot-place, with frontages to the north, east, and south. Park-street, which formerly occupied the site, was swept away, and recently the block of buildings at the north-west end of Bristo-street was also removed. The general appearance of the building from where it joins the University is a semi-circle divided by buttresses into a series of bays, and rising to a height of about 60 ft. A steel dome roof, terminating in an ornamental lantern 30 ft. high carries the total height of the building to 100 ft., and should the only remaining stage in the completion of the original design for the University be yet undertaken, a campanile tower will be constructed which will carry the elevation to 270 ft. The lower stage of this tower forms the north angle of the hall, and it is at present carried to the height of the rest of the building. The outer wall of the hall is divided horizontally into three parts. A cornice and open balustrade surmounted by the clearstory represents the highest division, the centre is arcaded in red stone, and the lower section is pierced by the windows necessary to give light to the corridors and the seven entrances and exits, the chief of which, 30 ft. in height and 16 ft. wide, is surmounted with a circular pediment and flanked by double pilasters. In the interior of the hall the architect has followed the idea of the Greek theatre as best adapted to the uses of the hall from an acoustic and pictorial aspect. The western face is a flattened apse, in which are placed the platform, with a series of oak stalls for the professors, and an organ loft. The auditorium springs from this western wall in a half-circle. The apse is 52 ft. wide, and is covered in by an elliptical ceiling, while from the back of the apse to the widest part of the semi-circle is about 107 ft. From one side of the semi-circle to the other the measurement is 134 ft., and from the floor to the top of the dome the height is 90 ft. Round the base of the semi-circle runs a corridor 12 ft. wide, lined with brick, and vaulted with stone, from which five doors give admission to the hall. The inner wall rises to the height of the first of two galleries, and from it springs an arcading of thirteen bays, rising to a height of 48 ft. from the floor and divided by columns of red stone with Corinthian capitals. At the wall-head is a carved stone frieze and cornice, and over that a coved clearstory with circular windows 7 ft. in diameter. The lighting of the hall is by the clearstory windows, a large light over the platform, and a large circular light in the centre of the dome. Access is had to the galleries by two circular staircases, each containing a double stair—one to the first gallery and the other to the second. The centre of the area will be fitted with movable seats, and there are four tiers of fixed seats behind, round the back of the semi-circle. The accommodation provided is for 3,000 persons. The organ will cost between 6,000*l*. and 7,000*l*. The decoration of the hall was entrusted to Mr. W. M. Palin, of London. The dome has been very elaborately treated. It is divided architecturally into fifteen ribs. These ribs are divided into four panels, three of which are filled with ornament, and the lower and larger panel with a figure subject double life size. These figures represent "Astronomy," "Mathematics," "Poetry," "History," "The Fine Arts," "Music," &c. Underneath those on each side of the circular windows and from the springing of the dome are spandrils, and these together with the coved ceiling or soffit of windows have been ornamented with designs in stone colour on gold and gold on blue respectively. The panels over the figures are similarly decorated on gold backgrounds. The space over the apse in the west wall is occupied by a large decorative design representing the Temple of Fame. It is a semicircular panel, 100 ft. in diameter, and springing 35 ft. from its base. Between eighty and ninety figures are painted from 9 ft. to double life-size. Underneath this panel are two lunettes decorated in monochrome, and four very large upright panels measuring about 35 ft. in height. The whole building is bound together by a colour frieze round the base, springing up through the cherubs introduced into the composition of the lower panels, then carried upwards by the lunettes to the "Temple of Fame," and round the "Dome" by the figures. In spaces between the arches of the arcades are medallions, on two of which have been painted heads of Michelangelo and Raphael. The ventilation of the hall will be by a fan worked from the basement, and the lighting will be by electricity. Mr. Westland, C.E., was engaged in the construction of the dome.

PARISH ROOM, WOOLHAMPTON, BERKSHIRE.—A memorial parish-room, which has a frontage to the high road of 40 ft. with a depth of 90 ft., is being erected at Woolhampton. It is built in hollow brickwork, faced with red pressed bricks of Reading manufacture, relieved by bands and arches in white Suffolk bricks and Bath stone dressings. The tower has provision for a clock. The internal dimensions of the parish-room are 20 ft. by 41 ft. with a raised platform at the apse end of the building; this room communicates by folding doors with a reading-room (16 by 15), with library adjoining. The roofs are open timber. Ventilation is provided by means of Tobin's inlet tubes and Boyle's patent air-pump extractor. The architect for the works is Mr. Jas. Newman, of Sandown, I.W. The contractor is Mr. George Elms, of Marsh Benham, Newbury.

WESTFIELD SCHOOL, ABERDEEN.—Plans of a new School at Westfield-lane have been prepared by Mr. A. Marshall Mackenzie, architect. The total length of the building will be 126 ft., and its extreme depth at the end wings 61 ft. 6 in.

METHODIST CHAPEL, BLOXWICH, STAFFORDSHIRE.—A new Primitive Methodist Chapel has just been completed in High-street, Bloxwich. The architects were the late Mr. Rixton and Mr. J. H. Hickton, Walsall; and the contractor and builder, Mr. W. Hopkins, Birmingham. The edifice has a frontage of 60 ft. on High-street, and is executed in terra-cotta. The ground floor is 40 ft. square, and the gallery 40 ft. by 60 ft. There is sitting accommodation for 600 persons. The interior of the chapel, which is heated by the hot-water system (by Messrs. Parkes, Birmingham), is executed in red deal, varnished, with the exception of the rostrum, which is carried out in pitch-pine and walnut.

RENOVATION OF LIVERPOOL PUBLIC BUILDINGS.—It is proposed to spend £17,500 on the redecoration and improvement of Liverpool public buildings. The Liverpool *Daily Post* says that concerning the St. George's Hall, opinion is almost unanimously in favour of a thorough re-embellishment. This is to be carried out without any undue attempt at modernising or "improvement." In the redecorating which is about to be carried out, the original designs, which are still in the possession of the Corporation, will be scrupulously observed. Even at present renovation would not have been necessary had it not been for the use of gas. The hall at present is lighted by twelve huge chandeliers, each having about 100 jets, and these have been in constant use for nearly fifty years. One of the improvements contemplated, however, is the introduction throughout the building of the electric light. This, it is estimated, will cost some 2,500*l*. Another improvement is the provision of waiting-rooms for witnesses, and, it is hoped also, for jurors. At present the accommodation for witnesses attending trials at assizes and sessions is limited to a small-sized room. The plan now contemplated is to remove the floor of the present witness-room, and fit up in place of it a staircase descending to the basement of the building, where a suite of some five commodious rooms will be provided, including a consultation room, refreshment room, and lavatory. These will be lighted by electricity. The Town Hall renovation will include the provision of adequate lavatory accommodation. The renovations of the Municipal Offices do not call for special remark, though it may be added that the offices will be fitted throughout with the electric light. The carrying out of the entire scheme is in the hands of Mr. Fletcher Turton, the Deputy Surveyor.

FOREIGN.

FRANCE.—The Municipality of Paris has opened a competition for large Fire-Brigade barracks at Montmartre.——It is announced that a large hotel is to be built at the Champs Elysées in view of the exhibition of 1900.——The pictures and objects of art belonging to the late Alexandre Dumas were sold last week. The receipts amounted to 384,850 francs.——At the Ecole des Beaux Arts, M. Dufour, a pupil of M. Laloux, has obtained the first medal in the students' competition organised by the Council. Two other pupils of M. Laloux, MM. Toussaint and Barbier, obtained the two second medals.——At Nice, last week, the monument in commemoration of the union of the County of Nice to France was inaugurated in the presence of the President. It is the work of M. Febvre, architect, and M. Allar, sculptor; the latter has been appointed Officer of the Legion of Honour.——A monument commemorating the union of Mentone with France has also been inaugurated by the President. Of this, M. Vaudremer is the architect, and M. Denys Puech the sculptor. M. Puech has just completed a remarkably fine bust of Jules Ferry, commissioned by the Government.——M. Thomsen, sculptor, has just completed the model for a monument in commemoration of the defence of Bazeilles during the Franco-German war. The monument, which is to be of imposing dimensions, will consist of a principal group formed by a Bazeilles peasant and an infantry soldier. At the base will be a bas-relief reproducing the incident of the "dernières cartouches," also the subject of a celebrated painting by De Neuville, popularly known through engravings.——The municipality of Tours is about to carry out a large new Hôtel de Ville for the town.——The old tower of the parish church of La Châtre (Indre) is in course of demolition, to be replaced by a new and more substantial building.——The church of Sainte Trinité at Cherbourg is to be restored, at an estimated cost of 112,000 francs, borne by the municipality.——A competition has been opened at Marseilles for a monument to the memory of Pierre Puget, the celebrated sculptor. The models are to be sent in from the 15th to the 30th of November next.——The Fine-Art Society of Périgueux will open an exhibition on May 21, to close on July 12.——The group representing "Greece crowning Lord Byron," which has just been inaugurated at Athens, is the joint work of M. Falguière and of the late M. Chapu.——The Académie des Beaux Arts has elected M. Vespigniani, architect to the Pontifical palaces at Rome, a corresponding member, in place of the late M. Balat, of Brussels.——The art exhibition of the "Institute of Carthage" will be held at Tunis from the 1st to the 30th of April.——The "Société Centrale des Architectes" has lost three of its members; M. Adolphe Mercier, who has died at the age of 70; M. Edouard Leudière; and M. Cantagrel. The last-named, who was formerly one of the municipal architects of Paris, committed suicide.

GERMANY.—According to the estimates of the Berlin Municipality for the financial year 1896-7, there will be a large expenditure on new bridges over the River Spree and the canals. The Potsdamer bridge alone will cost 45,000*l*.; 50,000*l*. will be devoted to the purchase of a fine site on the Museum Island for the erection of some public buildings.——Thanks to the mild winter, rapid progress is being made with the different public works at Berlin, and among these the monument to the late Emperor, William I., for which the foundations have been completed. As the bronze work is also well advanced it has been definitely decided that the monument is to be unveiled on March 22, 1897. We reproduced photographs of the model, with a plan, last year.——It has been decided to arrange an historical gallery in the International Art Exhibition, owing to the circumstance that the Prussian Royal Academy is celebrating the two hundreth anniversary of its formation this year. Only works by old masters who were members of the Academy will be hung in this room.——The termination of Colonel Swaine's office as military attaché to the Berlin Embassy will be almost a greater loss to those interested in the technical professions, who have to visit Berlin, than the retirement of the British Ambassador, whose patronage was principally given to art work. Colonel Swaine's assistance has been invaluable in obtaining special facilities for those who needed his influence and advice, which was always so freely given.——Further extensions are to be made at the Royal Technical College, Darmstadt, and the Diet of the Duchy has voted some 20,000*l*. for this purpose.——The Berlin Municipality has decided to adopt the incandescent gas light in some of the principal thoroughfares, where electric light cannot yet be laid on, and it has also given the contract to the company in question for lighting the Industrial Exhibition grounds with their light in those parts where electricity will not be available.

MISCELLANEOUS.

INSURANCE FOR ARTISANS.—The Prudential Assurance Company, in their forty-seventh annual report, state that "the directors have made more than one attempt to deal with the difficult question of old age pensions for the industrial classes, and they are happy to inform the shareholders that the special tables combining assurance with a provision for old age, which they issued in September last, have met with considerable success. At the end of the year the number of policies in force under these tables, as the result of three months' working, was 169,791, producing an annual premium income of 62,974*l*."

BLACKWALL TUNNEL.—Mr. Alexander R. Binnie, M.Inst.C.E., Chief Engineer of the London County Council, gave an account of the new Blackwall Tunnel at the Royal Institution on the 6th inst. The lecturer mentioned the earlier attempts of the elder Brunel, who was the first to use a compound movable "shield" for the purpose of penetrating sub-aqueous strata, to drive a tunnel under the Thames below London Bridge. The chief difficulty in making a tunnel under the Thames at this spot was the loose, watery nature of the strata forming the bed of the river. It must be remembered that the banks of the Thames were artificial, and that the surrounding country was considerably lower than high-water level. From the first it was clear that the use of compressed air in the works would be necessary. The width of the tunnel was 27 ft. He pointed out that the working face of the tunnelling was kept under an air pressure of between 30 lbs. and 40 lbs. on the square inch, in order to counterbalance the pressure of water forcing its way through the bed of the river. But in certain places where the gravels were very loose the progress was slow. The compressed air in such spots literally blew up the bed of the river.

DUNDEE BUILDERS' DINNER.—The annual dinner of Dundee and District Master Builders' Association was held in the Royal Hotel, Dundee, on the 5th inst. Mr. John B. Hay, the President, occupied the chair. The loyal and patriotic and other toasts having been given, Ex-Lord Dean of Guild M'Grady proposed "The Building Trades." A source of congratulation to the building trades and those who inhabited the houses they built was the very great improvement which had taken place within his remembrance in the class of buildings being erected in large centres. The ordinary tenements being built in Dundee for some years past showed an immense improvement on former buildings. They were more substantial, and were a class of property which was better in the end for all concerned. The building trade in Dundee had been for some time in a fairly satisfactory condition, and he hoped that state of affairs would continue for a long time. —The Chairman, in responding, said that from no body of men would the Town Council get greater support in their slum crusade than from the builders. Among the other toasts were "The Institute of Architects," by Mr. J. F. Shaw, replied to by ex-Bailie Keith; "Representatives of other Cities," by Mr. Thomas Macaulay, replied to by Messrs. Watson and Herbertson, Glasgow, and Nicoll, Edinburgh; "The Timber Trade," by Mr. Wm. Alexander, replied to by Convener Bell; "The Quarrymasters," by Mr. Leslie Ower, replied to by Mr. R. Galloway.

SOUTHPORT BUILDING TRADES ASSOCIATION.—The annual dinner in connection with the Southport and District United Building Trades Association has just been held at the Scarisbrick Hotel. About sixty sat down to the dinner, and the chair was occupied by Mr. James M. Petrie, the President of the Association.—The customary loyal toasts were duly honoured, and Councillor T. Jones having submitted the "Southport and District United Building Trades Association," Mr. G. Duxfield, in responding, said he did not think it fair for those in the Surveyor's department to be also architects to the Corporation. The latter should give that class of work to the Southport architects. He thought they would all agree with him, and so would the members of the Corporation if canvassed separately on the subject, that no man with the amount of work in the Surveyor's department resting upon his shoulders could do justice to it whilst at the same time he was doing architectural work in a town of the size and importance of Southport. —Mr. T. Wainwright proposed "The Architects." He said the architects were a body to whom those in the building trades owed respect, esteem, and confidence. Mr. S. Ingham, in response, said it would be an exceedingly pleasant thing if the architects would meet the builders more frequently than they did. He had agitated for an Architectural Association, which would be an addition to the Guildhall that had been suggested for the builders, and those two bodies might then often meet together. Mr. W. H. Foster, replying to the toast of "Secretary and Treasurer," proposed by Mr. J. Horrocks, apologised for the absence of Mr. W. E. Robinson, the Treasurer, who was laid up. The Association, he pointed out, was in a satisfactory financial position. The membership numbered forty-eight, and the subscription fee was 5s. a year, but he thought, considering there were 200 in the building trade in the town, they should have a larger membership. Other toasts followed.

REDUCTION IN RAILWAY FARES.—For some time past the question of taking some step with the view of arresting the continued decrease in the second-class traffic, which for some years has been a prominent feature in railway accounts, has been engaging the careful attention of the principal railway companies, and we are authorised to state that the directors of the Great Western and London and South-Western Railway Companies have just decided to reduce the second-class fares generally over their respective systems to a sum equivalent to about 1½d. per mile, in the hope that this substantial reduction may induce many who would otherwise travel third-class to avail themselves of the second-class carriages. We are also informed that, with a view to securing as far as practicable uniformity in the mode of calculating the first-class fares, the directors of the above companies have now determined to reduce the first-class fares to about 2d. per mile in all cases in which they are at present in excess of that amount. The exact date on which these alterations are to take effect has not yet been finally decided, as it will take some time to arrange the necessary details for giving effect to such important changes over the extensive systems of the two companies referred to.

BY-LAWS OF SANITARY AUTHORITIES UNDER THE PUBLIC HEALTH (LONDON) ACT, 1891.—The Medical Officer of Health of the County Council has prepared a report showing the position of the several sanitary authorities in London in relation to by-laws under the Public Health (London) Act, 1891. The report recites the sections of the Act which confer obligatory or permissive powers upon sanitary authorities to make by-laws for certain purposes, and a return is appended showing whether by-laws have been made by each authority under these sections, or whether regulations dealing with the same subject had been made before 1891 under former Acts of Parliament and are still in force. The return also shows the number of houses let in lodgings which have been registered in various districts and the cubic air-space required for each person occupying these houses. A large number of sanitary authorities have not registered any houses let in lodgings occupied by members of more than one family, and do not therefore appear to be carrying out the provisions of section 94 (1) of the Act which is as follows:—"Every sanitary authority shall make and enforce such by-laws as are requisite for the following matters; that is to say—(*a*) For fixing the number of persons who may occupy a house or part of a house which is let in lodgings or occupied by members of more than one family, and for the separation of the sexes in a house so let or occupied; (*b*) For the registration of houses so let or occupied; (*c*) For the inspection of such houses; (*d*) For enforcing drainage for such houses, and for promoting cleanliness and ventilation in such houses; (*e*) For the cleansing and lime-washing at stated times of the premises; (*f*) For the taking of precautions in case of any infectious disease." The question of the steps which should be taken in these cases will receive consideration at the next meeting of the Public Health and Housing Committee of the County Council.

THE IZAL AUTOMATIC DISINFECTOR.—The special point of this disinfector is that its action is visible. The container is of glass, and is fixed to the wall near the pipe from the closet supply-cistern, and connected into the pipe. The descent of water from the supply-cistern creates a partial vacuum in the pipe which draws out some of the disinfecting fluid (Izal mixed with three its bulk of water) from the disinfector. The amount to be extracted with each flush can be regulated by a cock on the short pipe connecting the disinfector with the flushing pipe. The whole arrangement seems exceedingly simple and effective, with the advantage that if not acting properly the fact can be noticed at once.

THICKNESS OF WALLS.—The Highway Committee of the West Bromwich Town Council have considered a communication from the local Trades Council with reference to the question of the thickness of walls, and they have formed the following conclusion:—It appears that certain houses have been erected in the borough where, owing to the owners not having completed the buildings for which plans have been approved, the external or gable walls have been left 4½ in. thick until the further erection of houses is proceeded with. Four cases of this character have been reported to them. There is also one case where part of the gable wall of a small bedroom over the sculleries of several houses has been left 4½ in. thick, instead of 9 in.; notice has been served on the builder to remedy this. As regards the thickness of walls generally, your committee are informed that there are very few authorities where 4½-in. party walls are allowed, and that the Local Government Board would not allow any by-law providing less than a 9-in. party wall. Having regard to these facts, and with a view of improving the stability of the houses, more especially of the working classes, your Committee recommend, "That every person who shall erect a new domestic building shall construct every external wall and every party wall of such building not less than 9 in. in thickness;" and that the words "domestic buildings," "external," and "party wall" shall have the same definition as set out in model by-laws of the Local Government Board.

AUCTIONEERS' INSTITUTE.—At a meeting on the 6th inst., at the Auctioneers' Institute, Chancery-lane, Mr. Frank Everill presiding, a lecture on "Valuations and Appraisements" was delivered by Mr. Abel J. Ram. Valuations, he said, were principally divided into two classes. To the first belonged valuations of improvements, crops, &c., as between landlord and tenant, and of properties and businesses as between vendors and purchasers. The second class was that of valuations made for the purposes of loans. In the second section, Mr. Ram remarked that a surveyor who was called upon to value property which either possessed local characteristics, or which was remote from localities he was familiar with, would act wisely to stipulate that some qualified gentleman possessing local knowledge should be associated with him in the survey or valuation. In conclusion, he said that a study of the law as it affected the auctioneers' profession taught one that the public daily needed and daily used the skill, experience, and learning of its members, and that daily it had to rely upon their integrity and honour.

RESTORATION OF BRISTOL CATHEDRAL.—The Mayor of Bristol, Mr. W. Howell Davies, presided on the 4th inst. at a public meeting held in support of the scheme for the restoration of Bristol Cathedral. He said a sum of £6,000 was required for immediate work. The Bishop of the diocese stated that the large sum wanted was simply for putting the eastern portion of the cathedral in sound repair. He had been, to a certain degree, terrified by what he saw, and he had heard that a portion of the parapet could be pushed over with the hand, and, if the wind were to dislodge it, a mass of stones would probably fall on a portion of the building below which had been but recently restored, and the mischief would be very serious. The work required to be done inside could wait. The High Sheriff supported the restoration project, and it was decided to at once take it in hand.

INSANITARY HOUSES, LIVERPOOL.—Sanction has just been obtained from the Grand Jury at Quarter Sessions, for the demolition of 240 insanitary houses in Liverpool.

CAPITAL AND LABOUR.

THE JOINERS' STRIKE AT BLACKPOOL.—The dispute between the master joiners of Blackpool and the workmen was concluded on Saturday last, work having been suspended for upwards of three weeks. In the first instance the men wanted an advance of 1d. per hour, but they have now accepted a ½d., and the masters have also conceded a point as regards overtime. The plasterers' strike is still in progress, and a dispute has also arisen between the master plumbers and the workmen.

BUILDING TRADES' ASSOCIATION OF MANCHESTER AND DISTRICT.—The second annual meeting of this Association was held on the 4th inst., at the Albion Hotel, Piccadilly, Manchester. The President (Mr. Robert Holland) presided. The annual report was read by the Secretary, Mr. Fred Scott. It stated that the Council had passed the following resolution for the consideration of the several allied trades, viz.:—"That it be a general recommendation to the various trades to adopt for breakfast time 8.30 to 9 a.m., instead of 8 to 8.30 a.m." The Council had satisfaction in reporting that a dispute between the master painters and their operatives had been satisfactorily settled by arbitration; and that, also, in respect of claims by the operative masons, the masters had made satisfactory arrangements. The Treasurer's statement showed that the Association was in a stronger financial position at the end than at the beginning of the year, the balance in hand having increased.—The report and financial statement were adopted on the motion of the Chairman, seconded by Mr. J. B. Kendall. Mr. Holland was re-elected President, Mr. G. Macfarlane, Vice-President; and Mr. J. Cantrill, Treasurer. The following were chosen members of the Council for the ensuing year, viz.:—Builders, Messrs. R. Neill, jun., J. Wilson, and G. Macfarlane; bricklayers, Messrs. R. Holland, C. H. Normanton, and C. Bridge; masons, Messrs. W. Marshall, J. B. Kendall, and J. Kirkham; plumbers, Messrs. W. Jaffrey, H. Lightfoot, and R. Lightfoot; plasterers and painters, Messrs. J. Cantrill, R. Higson, and W. G. Sutherland; slaters, Messrs. J. Barrow and R. Hughes; concretors, Messrs. B. Morton and T. E. Davies; moved by Mr. H. Green, seconded by Mr. J. J. Broadbridge.

BIDEFORD BUILDING TRADE.—Contrary to the expectation of the men, the builders and contractors of Bideford will not meet the Amalgamated Society of Carpenters and Joiners in conference respecting the proposed new rules for the trade locally. Some of the employers were willing; they threw in their lot with the others, and the following letter was sent to the secretary of the society:—"We, the undersigned, have been considering the proposition contained in yours of the 29th ult., to meet you in conference, but cannot see our way to do so, and beg to point out to you that so long as we are compelled to pay all men 5½d. per hour where some men are not worth it, those who are must be content with what we have been paying, and we are determined not to accede to your unreasonable demand." The men have met to consider their position, and by 32 votes decided to give their

employers notice, and come out on strike unless their demands are met or the masters agree to a conference. The society men will go on strike pay, and non-society men will be protected by trade subscription.

LEGAL.

IMPORTANT POINT UNDER THE METROPOLIS MANAGEMENT ACT, 1862:

CASE IN THE COURT OF APPEAL.

THE case of the London County Council *v.* Pryor came before the Court of Appeal, consisting of the Master of the Rolls and Lords Justices Lopes and Rigby, last week for judgment, it being the appeal of the defendant from a decision of Justices Lawrence and Collins, sitting as a Divisional Court of Queen's Bench, on a special case stated by a metropolitan police magistrate, raising the question as to whether a certain building in St. George's-road, Stoke Newington, came within Section 74 or Section 75 of the Metropolis Management Act, 1862. If it came within the former section compensation would have to be given for setting it back to the general building line, and if under the latter an order for demolition might be made. The facts were these:—

The respondent on April 1, 1895, appeared before the magistrate to answer a complaint that on October 20, 1894, at the northern side of Prince George's-road, Stoke Newington, he did unlawfully begin to erect a certain building beyond the general line of buildings without the consent of the London County Council, contrary to Section 75, of 25 and 26 Vict., cap. 102; Section 10, of 45 and 46 Vict., cap. 15; and 51 and 52 Vict., cap. 41. It appeared that on October 20, 1894, that the respondent, a builder, began to erect in Prince George's-road for Mr. Hicklin, the owner of the site, a certain building. The Superintending Architect to the London County Council, by his certificate of January 22, 1895, decided the general line of buildings in Prince George's-road, and decided that the said building was in the said road. Mr. Hicklin appealed to the Tribunal of Appeal constituted under Section 28 of the London County Council (General Powers) Act, 1890, and Section 175 of the London Building Act, 1894; but the respondent was not a party to that appeal. The result of that appeal was that the certificate of the architect, so far as it related to the general line of buildings on the northern side of Prince George's-road, was confirmed, but determined that the house in question was on land within the exceptions contained in the Act of 1890, such land being the sites of buildings, and land held with buildings, existing at the time of the passing of the Act. Prince George's-road runs at right angles to Stoke Newington-road. Previous to 1890, when Prince George's-road was laid out and made, there had been a row of houses, Nos. 69-85, Stoke Newington-road, having forecourts in front between them and the Stoke Newington-road and gardens at the back. In order to make a space for Prince George's-road, No. 81, Stoke Newington-road was pulled down. Nos. 83 and 85, Stoke Newington-road remained standing at the time the magistrate heard the summons. The forecourts to them were about 40 ft. in length. The building in question, when finished, will be situated on part of the forecourt of No. 83, and upon the whole forecourt of No. 85, and upon part of the gardens of Nos. 83 and 85. It appeared that the part which would be on the site of the old house itself was not the subject of the summons. The said building begun to be erected by the respondent was 7 ft. beyond the general line of buildings in Prince George's-road. No consent was given by the County Council to the erection of the said building. It was contended on the part of the respondent—(1) that inasmuch as the decision of the Tribunal of Appeal had determined that the said building was being erected on land within the exceptions of Section 33 of the London County Council (General Powers) Act of 1890, the architect had no power to decide the general line of buildings under Section 75 of the Metropolis Management Act of 1862; (2) that the said building was exempt from the requirements of Section 75 by reason of the facts being indistinguishable from those in the case of Lord Auckland *v.* The Westminster District Board. The appellants, in answer to the first point, contended that the Tribunal of Appeal on this appeal, which was under Section 28 of the Act of 1890, could not include in their decision a finding such as that set out. They relied on Nixey *v.* The London County Council. They also contended, in reply to the second point, that the principle of Lord Auckland's case did not apply. The magistrate decided against the first contention of the respondent, but being of opinion that the facts stated were indistinguishable from those of Lord Auckland's case, he dismissed the summons. The material portions of the important sections are as follows (25 and 26 Vict. cap. 102, the Metropolis Local Management Act, Section 74): "In case any building . . . which shall in any part project beyond the general line of the street in which the same may be situate . . . shall at any time be taken down . . . it shall be lawful for the Metropolitan Board of Works to require the same to be set back . . . as the said Board shall direct, provided that the said Board shall make compensation to the owner." Section 75 provides that "no building, structure, or erection shall, without the consent in writing of the Metropolitan Board of Works, be erected beyond the general line of buildings in any street, place, or row of houses in which the same is situate, in case the distance of such line of buildings from the highway does not exceed 50 ft. . . . such general line of buildings to be decided by the superintending architect . . . " It further provides that "in case any building be erected without such consent, the complaint may be made to a justice, who can direct the demolition of so much of the building as projects beyond the line." The London County Council have succeeded to the powers of the Metropolitan Board of Works.

The contention of the County Council was that though a man might build a house on the site of an old building, yet he could not build upon ground which was formerly a garden or forecourt. Another contention was that Prince George's-street, being a new street, there could have been no old site existing in that street. The old houses were in Stoke Newington-road.

The defendant contended that it was a question of fact, and the magistrate had found in his favour that the facts brought the case within the authority of Lord Auckland's case. Also that Section 75 did not apply to ground that had formerly been covered with buildings, unless the owner had relinquished his right of building.

Justices Lawrence and Collins decided that the magistrate was wrong in holding that the facts in the present case came within the decision of Lord Auckland's case, and remitted the case to the magistrate to be dealt with by him. Hence the present appeal.

Their Lordships, in the course of an elaborate judgment, confirmed the decision of the Divisional Court, and dismissed the appeal with costs.

Mr. Horace Avory and Mr. Dacdy appeared for the London County Council (the respondents), and Mr. McCall, Q.C., and Mr. Macmorran, Q.C., for the defendant (the appellant).

VESTRY OF STOKE NEWINGTON *v.* C. F. MIATT.

AT the North London Police-court, on the 5th inst., Mr. C. F. Miatt, of Osborn-road, Finsbury Park, was summoned before Mr. Kennedy, at the instance of the Vestry of Stoke Newington, to show cause why he should not remedy certain alleged sanitary defects in the house 111, Winston-road, of which he is the owner.

Mr. Webb, the Vestry Clerk, appeared in support of the summons; Mr. P. G. Henriques, barrister, was for the defence.

Mr. Burgess, the Surveyor and Sanitary Inspector, said that he had been to the house from time to time since August last, and he complained that the yard at the back of the house was not paved (thus allowing the walls to become damp), that the drinking-water cistern was directly connected with the water-closet pan, and that the sink waste discharged itself into a gully inside the house.

Dr. Kinwood stated that these conditions were dangerous to health, but he was not surprised to hear that the present tenant had been in the house five years, and had never had to complain of illness. Sometimes people lived and enjoyed good health in the most insanitary conditions, but in the long run they were bound to show the effects.

Mr. Kennedy said he was of opinion that the sink gully being within the house was a distinct nuisance, as sewer gas might, under pressure, escape into the house.

As to the connexion of the drinking water cistern with the water-closet supply, Mr. Henriques, for the defence, quoted a judgment of Justices Kennedy and Lawrence in which it was held that the County Council by-laws could only apply to new works, but Mr. Webb, the Vestry Clerk, who appeared in support of the summons, pointed out that there were special provisions relating to water-closets.

Mr. Henriques said that these houses were built under the superintendence of the sanitary officials of the Hackney Board of Works, and not a word of complaint had been heard until a new sanitary inspector was appointed by Stoke Newington. Were they to be subjected to considerable expense to meet the fads of each new inspector? Surely some check should be put on the local authorities in the administration of the Public Health Act. If not the officials would become uncontrollable.

Mr. Kennedy.—This is grandmotherly legislation, but we must put up with it.

Ultimately the magistrate made an order for the work to be done within fourteen days.

J. TURNER *v.* C. GLOSSOP.

AT the Sheffield County Court, on the 5th inst., his Honour Judge Ellison gave judgment in a case which was heard before him a fortnight ago. The principle involved was as to the custom in the trade of measuring "through" rockies. The plaintiff was Mr. Joseph Turner, quarry owner, of Middlewood, and he sued Mr. Charles Glossop, of 121, Hadfield-street, Walkley, for the sum of 25*l.* 4s. 4d., balance of account for the supply of stone for a house at Grindleford.

Mr. A. Muir Wilson appeared for the plaintiff and Mr. Ellison for the defendant.

The plaintiff's case was that he charged the defendant 20s. a rood for rockies, and it was usual to have one "through" for every square yard. He contended that the rule to measure "through" was double on the face. The defence was that the rockies should not be charged twice when the "throughs" only numbered one to every square yard. The defendant said on measuring up his building he found twenty-six yards of rockies short.

In giving judgment, his Honour said he had come to the conclusion that rockies were measured both ways, and that neither party had established a custom. The case at one time depended upon what had been the custom, but as that had been done away with, it depended on the contract between the two parties. With the exception of some ashlar he found a verdict for the plaintiff for 24*l.* 6s. 4d.—*Sheffield Independent.*

WHAT IS A "PUBLIC BUILDING?"

THE Guardians of the Hackney Union were summoned on the 10th inst., at the North London Police-court, for using certain buildings for a public purpose without first getting the sanction of the District Surveyor, and for neglecting to comply with his suggestions in the conversion of the buildings for public use.

The District Surveyor (Mr. Frederick Meeson), for whom Mr. Jutsum appeared, was complainant, and Mr. Ryde was counsel for the defence.

The short point was as to whether or not this was a "public building" within the meaning of the Act. The evidence showed that in August last the Guardians, having more children than could be conveniently quartered at their schools at Brentwood, and also having more old people than there was accommodation for at the Homerton Workhouse, purchased two houses in Sydney-road, Homerton, and converted them into "Married couples' quarters." The Surveyor had the preliminary notice of the intention of the Guardians, and visited to inspect the work of conversion. He found an extra staircase made entirely of deal, and a 9 in. wall which was not very strong, while a wall at the rear bulged, and was altogether unsafe. The Surveyor pointed out that this work was not satisfactory, but nothing was done to alter it, and the additions were put into occupation.

Mr. Ryde said this was not a public building; it was merely temporary accommodation. What would the Magistrates say if lodgings had been taken for these people?

Mr. Paul Taylor: I am not dealing with suppositions. I am dealing with the facts of this case.

Mr. Jutsum: There is no doubt these houses have been made part of a workhouse.

Mr. Ryde: And rendered very much more safe than heretofore because of two staircases being provided instead of one.

Mr. Paul Taylor held that the houses had become part of the workhouse, and therefore a public building within the meaning of the Act. Defendants were fined 1s. in each case, without costs.—*Morning Post.*

MEETINGS.

FRIDAY, MARCH 13.

Institution of Civil Engineers (*Students' Meeting*).—Mr. J. C. Cornock on "Tests of Centrifugal Pumps." 8 p.m.

SATURDAY, MARCH 14.

Sanitary Institute (*Lectures for Sanitary Officers*).—Inspection and Demonstration at the Aylesbury Dairy Company's premises, Bayswater. 3 p.m.

Edinburgh Architectural Association.—Visit to (1) Dundas Castle, (2) Kirkliston Church.

MONDAY, MARCH 16.

Royal Institute of British Architects.—Tenth Genera Meeting (Ordinary) to read papers on "Saint-Pierre-ès-Liens: the Ancient Cathedral of Geneva," by M. Louis Viollier (Hon. Corr. M.) and Mr. Lawrence Harvey. 8 p.m.

Sanitary Institute (*Lectures for Sanitary Officers*).—Dr. J. Priestley on "Infectious Diseases and Methods of Disinfection." 8 p.m.

Surveyors' Institution.—Mr. Arthur C. Pain on the "Light Railway Bill, 1896." 8 p.m.

TUESDAY, MARCH 17.

Institution of Civil Engineers.—Papers to be read, with a view to discussion:—(*a*) "The Lixiviation of Silver Ores," by Mr. J. H. Clemes; (*b*) "Mining and Treatment of Copper Ore at Tharsis, Spain," by Mr. C. F. Courtney; (*c*) "Tin Smelting at Pulo Brani, Singapore," by Messrs. John McKillop and T. Flower-Ellis. 8 p.m.

Sanitary Institute (*Lectures for Sanitary Officers*).—Inspection and demonstration of Disinfecting and Filtering Appliances at Messrs. J. Defries & Sons, Limited, 147, Houndsditch, E.C. 3 p.m.

London School of Economics and Political Science (9, *John-street, Adelphi*).—Mr. E. J. Harper on "The Rating Question: Effects of the Rating System." 6.45 p.m.

Imperial Institute (*East Hall*).—Dr. Max Ohnefalsch-Richter on "My Twelve Years' Stay in Cyprus." III. 5 p.m.

WEDNESDAY, MARCH 18.

Architectural Association (*Discussion Section*).—Mr. Edward Greenop on "Chimney Design." 7 p.m.

British Archæological Association.—Paper on "Recent Excavations in Awatobi and Sikyatki," by Dr. Alfred C. Fryer. 8 p.m.

Liverpool Engineering Society.—8 p.m.

Society of Arts.—Dr. D. Morris on "Bahamas Sisa Industry." 8 p.m.

COMPETITION, CONTRACTS, AND PUBLIC APPOINTMENTS.

COMPETITION.

Nature of Work.	By whom Advertised.	Premiums.	Designs to be delivered.
*Cemetery Chapels and Lodge.....	King's Norton R.D.C.	.....	April 28

CONTRACTS.

Nature of Work or Materials.	By whom Required.	Forms of Tender, &c. Supplied by	Tenders to be delivered.
House and Shop, Newburgh, Aberdeen		Wm. Ruxton, Archt. Aberdeen	Mar. 16
*Removal of Slop and Dust, Street Watering, &c.	St. Giles Bd. of Wks. Holborn, W.C.	G. Wallace, Offices, 197, High Holborn, W.C.	do.
*Works and Supply of Various Materials	do.	do.	do.
*Coal	Corp. of London	Comptroller's Office, Guildhall	do.
Covered Ways, Walls, &c.	Derby Union	Coulthurst & Booty, Archt 4, Albert-street, Derby	Mar. 17
Alterations, &c. Workhouse, Longfleet	Poole Union	H. F. J. Barnes, Archt. Towngate-street, Poole	do.
Villas, Gardiner's-hill, Cork		W. H. Hill, Archt. Cork	Mar. 18
Street Works, Burnaby-street, &c.	Barrow - in - Furness Corp.	Borough Engineer	do.
New Buildings, Millbank, Berryden-road, Aberdeen	Northern Co-op. Co. Lim.	A. Mavor, Archt. 211, Union-street, Aberdeen	Mar. 19
Granite Road Metal	Fenton (Staffs) U.D.C.	S. A. Goodall, Surv. Town Hall	do.
Surveyor's Materials	Truro U.D.C.	Wm. Clemens, Surv. Quay-street	do.
Water Conduit (11 miles)	Belfast Water Com.	J. H. H. Swiney, C.E. Avenue-chambers, Belfast	do.
*Goods Shed at Fishponds	Midland Railway	Co.'s Archt. Cavendish House, Derby	do.
*Cleaning and Painting	do.	do.	do.
*Painting at Goods Station, Nottingham	do.	J. A. McDonald, M.R. Offices, Derby	do.
Wing to Market, Offices, &c.	Pontypool U.D.C.	R. Williams, Archt. Osborne-road	do.
New Roads, Red Lion-street, &c.	.....	J. G. Killingworth, 5, Dolphin-lane, Boston	do.
Pipe Sewer	Hamilton (N.B.) Town Commrs.	W. R. Copland, C.E. 146, West Regent-st. Glasgow	Mar. 20
Four Houses, Dersingham, Norfolk	F. Terrington	Wm. Jarvis, jun. Archt. King's Lynn	do.
*15,000 tons Portland Cement	Birmingham Corp.	J. Mansergh, 5, Victoria-street, S.W.	do.
*Brick and Pipe Sewers	Rawtenstall and Bacup Joint Sewer Com.	H. A. Cutler, Municipal Offices, Rawtenstall	Mar. 21
Surveyor's Materials	Burnley Corp.	G. H. Pickles, C.E. Town Hall	do.
*Socketed Sewage Pipes	Wilmslow U.D.C.	J. Bowden, 14, Ridgefield, Manchester	Mar. 23
Eight Houses, Greenside, Dalton	Huddersfield Indus. Society	J. Berry, Archt. 9, Queen-street, Huddersfield	do.
Additions to Workhouse, near Durham	Houghton - le - Spring Union	D. Balfour, C.E. Sunderland-street, Houghton	do.
Sewers, &c. Charlbury, Oxon.	Chipping Norton R.D.C	A. Rawlinson, Clerk, Coun. Offices, Chipping Norton	do.
Earthenware Pipe Sewers (7½ miles) Lofthouse-with-Carlton, Yorks	Rothwell U.D.C.	Messrs. Richardson, 28, Bond-street, Leeds	do.
Twenty Cottages, Rose Hill, Rawmarsh, near Rotherham		G. A. Wilson, Archt Hartshead-chambers, Sheffield	do.
*Technical Dual School	Holywell District School Governors	H. T. Smith, Bank Chambers, Holywell	do.
*Weights and Measures Testing Office	London C.C.	Architect's Department, Spring-gardens, S.W.	Mar. 24
*Gas Meter Testing Office	do.	do.	do.
*Road Materials	Bromley U.D.C	Council Offices	do.

CONTRACTS—*Continued.*

Nature of Work or Materials.	By whom Required.	Forms of Tender, &c. Supplied by	Tenders to be delivered.
Water Supply	Knutsford Light and Water Co.	W. Nicholls, King-street, Knutsford	Mar. 24
Refuse Destructor, North End	Birkenhead Corp.	C. Brownridge, Boro' Engr. Town Hall	do.
Tenements, McLeod-street, Townhead	Glasgow Corporation	J. D. Marwick, Town Clerk, City Chambers	do.
Stables, &c. Portsword	Southampton Corp.	W. B. G. Bennett, Boro' Eng.	do.
Business Premises, Mill-street	Bideford Bridge Trust	R. T. Hookway, Archt. Bideford	do.
*Construction of Sewers	North Walsham U.D.C.	J. C. Melliss, 264, Gresham-street, E.C.	Mar. 28
Schools	Llanhilleth (Wales) Sch. Bd.	Swash & Bain, Archt 3, Friar's-chambers, Newport, Mon.	do.
Granite Road Metal (15,000 tons)	Bucks C.C.	R. J. Thomas, Surveyor, County Hall, Aylesbury	Mar. 28
Sewers	Milnrow (Lancs.) U.D.C.	Jas. Diggle, C.E. 29, Alexandra-street, Heywood	do.
*Engineering Fittings	Met. Asylums Board	T. W. Aldwinckle, 1, Victoria-street, S.W.	Mar. 27
*Fixtures and Fittings (Carpenters, &c.)	do.	do.	do.
*Purifying House	Sheffield United Gas Light Co.	F. W. Stevenson & Co. Commercial-st. Sheffield	Mar. 30
*Pipe Sewers	Southend-on-Sea Corp.	Boro' Surv. Clarence-road, Southend	do.
*Alterations and Additions to Tooting College	Wandsworth & Clapham Union	Widnell & Trollope, Surv. 13, Parliament-st. S.W.	Mar. 31
*Road Making	Dorking U.D.C.	The Surveyor, 38, High-st. Dorking	April 2
Police Station, Moreton-in-the-Marsh	Glos. Standing Joint Committee	M. H. Medland, Archt. 15, Clarence-st Gloucester	April 4
Cottage Hospital, Whalley-road, Accrington		Haywood & Harrison, Archt Church-st. Accrington	April 6
*Refreshment Rooms, Royal Pier	Southampton Harbour Board	E. C. Poole, 2, Portland-st. Southampton	April 14
*Construction of New Museum for Egyptian Antiquities	Egyptian Government	Offices of the "Service Administratif"	April 18
*Construction of Arabic Museum and Khedivial Library, Cairo	do.	do.	May 2
*Heating Apparatus, &c.	Longton Corporation	J. W. Wardle, Court House, Longton	No date
Additions, &c. Cloonahee House, Elphin, co. Roscommon	R. Hague	C. Mulvany, Archt. Athlone	do.
Re-building Anchor Inn, Sutton Bonnington, Leicester	Marston & Son	W. T. Hampton, Archt. Hotel-street, Coalville	do.
Semi-detached Cottages, Kirkstall, Leeds	.....	A. E. Dixon, Archt. 8a, Park-lane, Leeds	do.
Clubhouse, Hetton-le-Hole, Durham	.....	F. Caws, Archt. 22, Fawcett-street, Sunderland	do.
Club Premises, Castleton, Lancs.	.....	Sidney Stott, Archt. York-chambers, Oldham	do.

PUBLIC APPOINTMENTS.

Nature of Appointment.	By whom Advertised.	Salary.	Applications to be in.
*Clerk of Works	Folkestone Sch. Bd.	.....	Mar. 16
*General Assistant	Burnley Corp.	2l. 5s. per week	Mar. 23
*Assistant Sanitary Inspector	Bermondsey Vestry	130l. rising to 175l. per annum	do.
*Clerk of Works	Neath Corporation	2l. per week	Mar. 31
*Engineer and Surveyor's Chief Assistant	Tottenham U.D.C.	180l. per annum, increasing to 250l.	April 7

Those marked with an asterisk (*) are advertised in this Number. Competition, p. iv. Contracts, pp. iv., vi., viii., & x. Public Appointments, pp. xix. & xxi.

Builders' Foremen and Clerks of Works' Institution.—8 p.m.

Sanitary Institute (Lectures for Sanitary Officers).—Inspection and Demonstration of Casual Wards and Disinfecting Station, at Chelsea, at 3 p.m., conducted by Dr. Louis Parkes.

Carpenters' Hall, London Wall.—Professor T. Roger Smith on "The Decay and Failure of Buildings." 8 p.m.

Surveyors' Institution.—Annual Dinner, Whitehall Rooms, Hotel Métropole.

THURSDAY, MARCH 19.

Society for the Encouragement of the Fine Arts.—Mr. James Orrock, R.I., on "Constable."

Sanitary Institute (Lectures for Sanitary Officers).—Dr. Alfred Hill on "Diseases of Animals in Relation to Meat Supply; Characteristics of Vegetables, Fish, &c., unfit for Food." 8 p.m.

Society of Antiquaries.—8.30 p.m.

Institution of Civil Engineers.—Students' visit to the Thames Iron Works, Orchard-yard, Blackwall. 2.30 p.m.

Society of Arts (Indian Section, to be Held at the Imperial Institute).—Mr. J. H. Glass, C.I.E., Chief Engineer, Dept. Public Works, Bengal, on "The Great Landslip at Gohna, in Gurhwal, and the Measures Adopted to Prevent Serious Loss of Life." 8.30 p.m.

FRIDAY, MARCH 20.

Architectural Association.—Mr. C. Fitzroy Doll on "The Architecture of the Teutonic Order, with particular reference to the Restoration of the Marienburg." 7.30 p.m.

SATURDAY, MARCH 21.

Sanitary Institute (Lectures for Sanitary Officers).—Inspection and Demonstration at Mitcham, conducted by Dr. L. W. Darra Mair.

TENDERS.

[Communications for insertion under this heading should be addressed to "The Editor," and must reach us *not later than* 10 *a.m. on Thursdays*. N.B.—We cannot publish Tenders unless authenticated by the name and address of the sender: and we cannot publish lists in which the accepted Tender is below £100, unless in some exceptional cases and for special reasons.]

ABERDEEN (N.B.).—Accepted for the execution of road works, Rubislaw Den South, for the City of Aberdeen Land Association, Limited. Messrs. Walker & Duncan, C.E., 3, Golden-square, Aberdeen. Quantities by engineers.
John Bain, Aberdeen ..... £309 10s. 8½d.

ALDERSHOT.—For building stable in rear of No. 9, Wellington-street, Aldershot, Hants, for Messrs. C. Hammerton & Co. Mr. Stanley Parker, architect, 427, Edgware-road, W.:—
G. Kemp, Aldershot £168

ABERTILLERY (Mon.).—For the erection of ten cottages, for Messrs. Griffiths Bros., Limited, at Abertillery, Mon. Messrs. Lansdowne & Griggs, architects, Newport, Mon.:—

I. D. Williams	£2,680	H. Rosser	£1,825
D. C. Jones & Co.	2,317	W. Buddenig	1,787
Hatherly & Carr	2,297	T. J. Davis, Newport*	1,580
Morgan & Evans	2,013	* Accepted.	

AYLESBURY.—For additions to the "Falcon" inn. Mr. Guest Luckett, architect, Aylesbury:—

Wallis & Sons	£577 0	Senior & Clarke	£418 16
E. Brewer	498 7	Sisarey, Aylesbury*	402 7
S. Grist, Limited	488 0	Grimsdale	374 7
* Accepted.			

BECKENHAM.—Accepted for the erection and completion of twelve houses in Clock House-road, Beckenham. Mr. William G. Ingram, architect, 44, Theobald's-road, Bedford-row, W.C.:—
H. Pharaoh £3,650

BECKENHAM.—Accepted for the erection and completion of seven houses in the Avenue-road, Beckenham. Mr. William G. Ingram, architect, 44, Theobald's-road, Bedford-row, W.C.:—
H. Pharaoh £2,000

BISHOP'S WALTHAM (Hants).—For the erection of new infant school, for the School Board. Mr. Wm. Gilbert, architect, Bishop's Waltham:—

Hale Bros.	£725	George Apps*	£670
George Dowse	677	* Accepted.	

[All of Bishop's Waltham.]

BOURNEMOUTH.—For new main sewers at Boscombe. Mr. F. W. Lacey, Borough Engineer and Surveyor:—

George Troke†	£11,121 7	S. Saunders†	£7,705 0
W. H. Saunders & Co.	10,979 0	B. Cooke & Co.*	7,790 0
T. Adams	8,054 0	† Informal. * Accepted.	

BOURNEMOUTH.—For painting Bournemouth Promenade Pier. Mr. F. W. Lacey, Borough Engineer and Surveyor:—

	White Lead Paint.	Calley's Torbay Oxide Paint.
F. T. Cutler	£495 0	£410 0
Dacombe & Son	350 0	355 0
George & Harding†	290 0	320 0
Jenkins & Sons*	227 10	235 10

* Accepted for white lead paint. † Informal.

BRAINTREE (Essex).—For the erection of a post-office, for Mr. G. Thorpe Bartram. Mr. Jas. W. Clarke, architect, Coggeshall, Essex. Quantities by Mr. J. Sydney Parmenter, Exchange-chambers, Ipswich:—

Samuel C. Parmenter	£1,328	Ernest West	£1,150
Alfred Brown	1,270	Thoday & Co.	1,092
Henry Potter	1,215	J. Smith & Son, Witham*	1,024
W. E. Letch	1,197	* Accepted.	

[To be completed within five months.]

BRIGHTON.—Additions to the Race Stand. Mr. Reginald White, architect, Epsom. Quantities by Messrs. Nunn & Hunt, Brighton:—

	A	B	C	Total.
	£ s.	£ s.	£ s.	£ s.
Botting & Son	2,302 0	770 0	318 0	3,444 0
Lynn & Sons	2,264 0	764 0	385 0	3,413 0
W. & T. Garrett	2,347 0	752 0	327 0	3,426 0
W. A. Field & Co.	2,297 0	732 0	340 0	3,369 0
J. Barnes	2,250 0	763 0	315 0	3,328 0
J. J. G. Saunders & Sons	2,230 0	728 0	316 0	3,274 0
T. Griffiths	2,173 0	758 10	299 0	3,230 10
N. F. Freeman	2,169 0	744 0	295 0	3,208 0
Patching & Sons	2,158 0	751 0	284 0	3,193 0
Parsons & Sons	2,145 0	746 0	289 0	3,180 0
G. R. Lockyer	2,136 0	740 0	277 0	3,153 0
Langdale, Hallett, & Co.	2,161 0	690 0	252 0	3,103 0
Sattin & Evershed	1,996 16	681 11	231 13	2,910 2

A.—New wing north end of grand stand. B.—New club stand and judge's box. C.—Addition to telegraph room. Shelter to be in reserved lawn and range of twelve saddling stalls.

BRISTOL.—For the erection of Salvation Army building, Ashley-road. Mr. A. Gordon, architect, 107, Queen Victoria-street, E.C.:—

E. Love	£5,931 0	J. E. Davis	£4,999 0
Hatherley & Carr	5,625 0	R. Wilkins	4,790 0
Wm. Church	5,463 0	Love & Waite	4,590 0
E. Walters	5,338 0	J. Morgan	3,970 10
G. H. Wilkins	5,180 0		

BROCKLEY (Kent).—For alterations to the premises No. 167, Brockley-road (a) for Mr S. H. Dench, and alterations to No. 169, Brockley-road and rebuilding stables (b) for Mr. J. Easton. Mr. John Jas. Downes, architect, 199, Lewisham High-road, S.E.:—

	a.	b.
Soper	£595 0	£365 0
Sayers	510 0	679 0
Best	389 0	580 15
Levy	465 0	533 0

CARDIFF.—For the erection of villa residence, Dyrac Powis for Mr. F. W. Smart. Mr. W. H. Dashwood Caple, architect, 1, St. John's-square, Cardiff. Quantities by the architect:—

C. H. Hirst	£1,155 7 0	W. T. Morgan	£990 0 0
D. C. Jones & Co.	1,073 0 0	Jones & Maddren	924 0 0
J. E. Davies	1,067 0 0	B. Evans	893 0 0
E. C. Newby	1,061 3 8	J. Colbourne	874 5 7
Rees & Thomas	940 0 0	S. Dear, Barry Dock*	870 0 0
		* Accepted.	

CROYDON.—For extensions and new shop-fronts to Nos. 34 and 36, Whitehorse-road, West Croydon, Surrey, for Mr. E. G. Wilkinson. Mr. E. J. Strevens, architect, 246, Camberwell-road, London, S.E. No quantities:—

Hy. Eames	£416	Jas. Shepherd	£[illegible]
J. H. Pugh	385	E. Everitt*	335
King & Son	372	Smith & Son	300
		* Accepted.	

EAST BARNET.—For the erection of a school at Brunswick Park, New Southgate, for the East Barnet School Board. Mr. W. Pywell, architect :—

A. E. Symes	£3,900	Hy. Wall & Co.	£3,397
Godson & Son	3,670	J. P. White	3,393
Chessum & Son	3,662	S. F. Halliday	3,365
Willmott & Son	3,650	W. M. Butcher	3,360
H. Brown	3,499	Knight & Son	3,350
Wm. Wells	3,483	W. Lawrence	3,325
Ch. Marriott, jun.	3,452	Battley, Sons, & Holness*	3,192
S. Redhouse	3,410		

* Accepted subject to the approval of the Education Department.

FENTON.—For the erection of Queen-street Schools, Fenton, for the Stoke-on-Trent School Board. Plans and quantities by Messrs. R. Scrivener & Sons, Hanley :—

Ellis	£6,830 0	Smith	£6,455 0
Grant	6,750 0	Godwin	6,454 10
Price	6,693 0	Bennett	6,450 0
Tompkinson & Beteley	6,597 0	Embrey	6,259 0
Voxall	6,460 0	Bagnall, Fenton*	6,058 0

* Accepted.

LONG DITTON.—Accepted for re-decorating the "Glade," for Mr. Eccles :—
J. H. Jarvis, Surbiton £234 0 0

LONDON.—For making-up King's-road, for the Wood Green Urban District Council. Mr. C. J. Gunyon, Surveyor, Town Hall, Wood Green, N. :—

H. Lee	£1,024 16 11	W. Griffiths	£759 6 7
W. T. Williamson & Son	764 0 0	Thos. Adams, Greenlanes Goods Station, Wood Green*	737 9 0
W. Nicholls	761 4 0		

* Accepted subject to approval of Local Government Board.

LONDON.—For alterations to roof of brewhouse at the Stockwell Brewery, Stockwell, S.W., for Messrs. Hammerton & Co. Mr. Stanley Parker, architect, 427, Edgware-road, W. :—
E. Parsons & Co., Wandsworth £335

LONDON.—For alterations and additions to factory, Murray-street, Hoxton. Mr. F. E. Smee, architect, 12, West Smithfield, E.C. Quantities by Messrs. Goodchild & Son, 81, Finsbury-pavement :—

Colls & Son	£1,639	Morrison & Goodwin	£1,259
Hawtrey & Son	1,253	Lister & Co.*	1,219

* Accepted.

LONDON.—For engineering works in connection with the new St. Marylebone Public Baths and Wash-house. Mr. A. Saxon Snell, architect. Quantities by Messrs. Northcroft, Son, & Neighbour :—

J. D. Berry & Co.	£12,598	H. Young & Co.	£11,070
Charles Wall	12,480	Rosser & Russell	11,635
J. Fraser	12,285	J. & F. May*	11,050

* Accepted.

LONDON.—For electric lighting wiring, fittings, &c., in connexion with the new St. Marylebone Public Baths and Wash-house. Mr. A. Saxon Snell, architect. Quantities by Messrs. Northcroft, Son, & Neighbour :—

F. A. Donnison & Co.	£2,050 0 0	Emanuel & Co.	£1,666 0 0
F. Suter & Co.	1,950 5 4	Strode & Co.	1,633 10 5
H. South	1,950 0 0	L. Alwyn	1,422 0 0
Roger Dawson & Co.	1,681 3 7		

LONDON.—Accepted for alterations to the "Glengall Tavern" public-house, No. 1, Bird-in-Bush-road, Peckham, S.E., for Mr. Thomas Dipple. Mr. E. J. Strevens, architect, 246, Camberwell-road, S.E. :—
J. H. Pugh £356 12 6

LONDON.—For alterations and additions to the "Devonshire Arms," No. 41, Liverpool-road, Islington, N., for Mr. J. T. Clinker. Mr. E. J. Strevens, architect, 246, Camberwell-road, S.E. :—

Conning & Mullins	£805 0	Stevens Bros.	£594 0
Balaam Bros.	750 0	Spencer & Co.	585 0
Tyerman	666 0	Courtney & Fairbarn	537 0
Rowe & Sons	658 0	W. M. Cook	532 10
Edwards & Medway	619 0	King & Son, Peckham*	520 0
Lonnie & Co.	595 0		

* Accepted.

LONDON.—For rebuilding 39, Bishopsgate-street, for the Transvaal Goldfields, Limited. Mr. H. H. Collins and Mr. M. E. Collins, joint architects. Quantities by Messrs. Batstone Bros. :—

Colls & Son	£11,335	W. Downs	£10,414
J. W. Faulkner	11,212	J. Greenwood	10,368
H. Lovatt	10,972	W. N. Lascelles & Co.	10,117
Bywaters	10,948		

LONDON.—For underpinning and general repairs at "Avenue House," The Glebe, Camberwell, for Mrs. de Clermont. Mr. E. J. Stevens, architect, 246, Camberwell-road, S.E. No competition :—
John Ham £421 12 6

LONDON.—Accepted for alterations, new shop front, &c., to 5, 6, 7A, Tottenham Court-road, W., for Messrs. Reiss. Mr. William G. Ingram, architect, 44, Theobald's-road, Bedford-row, W.C. :—
Sims & Wood £374

LONDON.—Accepted for repairs, &c., to No. 15A, Deacon-street, S.E. Mr. William G. Ingram, architect, 44, Theobald's-road Bedford-row, W.C. :—
G. Parsons £178

LONDON.—For alterations and additions to "The Royal William" public house, Dorset-road, Clapham, S.W., for Mr. D. J. Jones. Mr. William G. Ingram, architect, 44, Theobald's-road, Bedford-row, W.C. :—

J. Jackson	£887	Peacock Bros.	835
Edwards & Medway	867	Candler & Sons	782
J. T. Stephens	825	Maxwell Bros.*	769

* Accepted.

LONDON.—For the completion of eight shops with suites of chambers over, at Green-street, Leicester-square, for Mr. C. H. Newman. Mr. G. D. Martin, architect, 3, Pall Mall East, S.W. :—

Dove Bros.	£5,395	W. Larter & Son	£4,785 0 0
J. Allen & Sons	5,125	J. Myring & Co.	4,675 0 0
Henry Lovatt	5,037	F. Colwill	4,672 11 7
Herbert & Edwin Lea	4,849	R. Eddie	4,298 0 0
W. Gibbin & Son	4,800		

MITCHAM.—For the erections of a house and stabling at Bunns-grove, Lower Mitcham, for Miss Johnson. Mr. Robert M. Clark, architect, Mitcham. Quantities by Messrs. Franklin & Andrews, 29, Ludgate-hill, E.C.

D. Stewart & Sons	£2,288	E. J. Burnand, Wallington*	£1,950
J. Burgess	2,035		

*Accepted.

MIDDLETON (Lancashire).—Accepted for the execution of sewerage works, Manchester Old-road (Contract No. 2), for the Corporation. Mr. H. L. Hinnell, C.E., 41, Corporation-street, Manchester :—
G. Freeman & Sons, Hollingwood, Oldham (as per schedule of prices).

NEWPORT (Mon.).—For the erection of "Exchange" public-house, Commercial-street, Newport, for Mrs. Row. Messrs. Lansdowne & Griggs, architects, Newport :—

W. Moon	£995	C. H. Reed	£848
J. Davis & Son	990	Dyson Parfitt	847
Bowden	900	T. J. Davis	840
Frazier	897	T. G. Diamond	837
E. J. Davis	880	John Jenkins	829
Wm. Price	877	Chas. Reed	821
Hooper	865	John Linton (accepted)	784

NEWPORT (Mon.).—For the erection of six cottages and stables, for Mr. F. Fireding, Cwmtillery, Mon. Messrs. Lansdowne & Griggs, architects, Newport :—

Morgan & Evans	£2,034 17 5	Ellis & Reed	£1,597 15 0
J. Morgan	1,981 3 0	H. Summers, Cwmtillery*	1,554 13 0
Hatherly & Carr	1,655 0 0		
G. H. Griffiths	1,626 0 0		

* Accepted.

NEWPORT (Mon.).—For the erection of stables, &c., for Mr. F. E. Burpitt, Newport, Mon. Messrs. Lansdowne & Griggs, architects, Newport :—

G. H. Griffiths	£130	Colwill & Baglow, Newport (accepted)	£120
R. Williams	125		

PLAISTOW (Essex).—For additions to the Congregational Church. Messrs. Newman & Jacques, architects, 2, Fen-court, E.C. Quantities by Messrs. P. L. Curtis & Sons.

Maddison	£2,797	White	£2,339
Cooper & Jerram	2,585	J. Holland	2,285
G. Sharpe	2,503	Thompson & Beveridge	2,242
Symes	2,468	Battley, Son & Holness	2,197
Keen	2,440	North Bros.	2,150
Pavey	2,393	J. G. Horlock	2,149
Nightingale	2,350	W. G. Holland*	2,077

* Accepted.

PRESTON.—For additions to St. Mark's Schools, Wellfield-road, Preston. Messrs. Park & Son, architects, 18, Winckley-street, Preston. Quantities by the architects :—

J. Walmsley	£2,493 0 0	J. Hull	£1,929 2 3
J. Cartmell	2,027 8 0	T. N. Livesey	1,885 3 0
M. Shorrock	2,002 0 0	J. Christian*	1,875 0 0
J. Swarbrick	1,987 3 0	T. & R. Colley	1,862 10 0
W. Whiteside	1,950 0 0		

* Accepted.

PUTNEY.—Accepted for additional story to All Saints' School, Lower Common. Messrs. Lee & Pain, architects :—
Modified Tender.
L. H. & R. Roberts £2,533
Zinc Work.
Braby & Co. £128

RICHMOND.—Accepted for alterations to new shop-front, chimney shaft, &c., Eton-street, Richmond, for Mr. J. G. Hatton. Mr. Brewer, architect, Richmond :—
John Appleby, London and Richmond £310

RYDE (Isle of Wight).—Accepted for alterations and additions at Sorrento Lodge, for Colonel J. M. England. Mr. John I. Barton, architect, Ryde.
J. Whitewood, Ryde £397

RYDE.—For new bakehouses, ovens, kitchens, &c., Union-street, Ryde, for Mr. Arthur S. Marlow. Mr. John I. Barton, architect, Ryde.
Langdon ..... £597 | Isaac Barton, Ryde* £597
*Accepted.

RYDE.—For new school building and teachers' residence at Haven-street, for the Ryde School Board. Mr. John I. Barton, architect, Ryde.

Holland	£1,747 10	Barton	£1,234 0
Whitewood	1,495 0	E. James Binstead, Ryde (Accepted)	1,195 0
O. James	1,476 0		

ST. ALBANS (Hertfordshire).—For the erection of a villa residence for Mr. A. Faulkner, in the Avenue-rd. Mr. F. E. Smee, architect, 12, West Smithfield, E.C. Quantities by Messrs. Goodchild & Son, 81, Finsbury-pavement :—

	Estimates. A.	B.	C.	Total.
Kerry & Son	£2,149	£121 0	£84 0	£2,354
Saml. Page	2,135	117 0	79 0	2,331
Turner & Co.	2,051	115 0	77 0	2,243
Savage	2,000	109 0	66 0	2,175
Chas. Miskin	1,950	110 0	90 0	2,150
Jervis & Whibley*	1,953	102 16	82 7	2,139

* Accepted subject to certain reductions.

SHAW (Lancs.).—For erecting new Salvation Army building, for the Shaw Citadel Co., in Farrow-street, Shaw, Lancashire. Mr. Alexander Gordon, architect, 107, Queen Victoria-street, London, E.C. :—

J. & G. Mann	£1,140 0 0	T. Morgan	£794 12 0
J. Bryon	1,108 10 0	Rhodes Bros.	675 0 0
J. Greenwood	990 0 0	P. Lewis	644 17 4

SOUTHAMPTON.—For the erection of the Mount Pleasant Central Hall Board Schools, Southampton, to accommodate 1,230 children, including heating and ventilation, caretaker's cottage, cookery class-room, boundary walls and fences, tar-paving to playgrounds, &c. Mr. John H. Blizard, Architect and Surveyor to the Board. Quantities supplied :—

H. Cawte	£21,940	H. W. Bull	£20,977
Playfair & Toole	21,680	H. Stevens & Co.*	20,969

Architect's estimate £21,718
* Provisionally accepted.

SURBITON.—For erecting private house for Dr. Mence. Mr. T. Timberly, architect :—

Scase	£2,598 0	Adkins Bros.	£1,995 10
Tomkinson	2,249 0	J. H. Jarvis, Surbiton*	1,993 0

* Accepted.

TANFIELD.—For the execution of sewerage works for the Urban District Council. Mr. R. Heslop, Surveyor, District Council Chambers, Tanfield. Quantities by Surveyor.

Wm. Johnson	£600 0 0	G. Etherington	£414 14 0
D. H. Porter	598 0 0	S. Dart	408 7 0
J. Thompson	578 0 0	J. Manley	397 0 0
N. Nicholson	537 7 0	G. Bell, Bishop Auckland*	389 16 0
J. Heslop	422 4 4		
S. Walker	415 0 0		

* Accepted
Surveyor's estimate ..... £415.

TENDRING (Essex).—For proposed new school, covered playgrounds, E.C.s, &c., and teacher's residence, for the Tendring School Board. Mr. J. W. Start, architect, Colchester. Quantities by the architect :—

	New School.	Covered playground, E.C.s, Drainage, &c.	Teacher's House	Total.
	£	£	£	£
Smith & Beaumont	1,753	526	525	2,804
T. Canham	1,845	482	469	2,796
H. J. Linzell	1,759	546	424	2,729
Girling & Coe	1,744	550	434	2,728
E. West	1,700	525	400	2,625
F. Dupont	1,522	550	410	2,480
E. Saunders	1,330	500	415	2,245

TORQUAY.—For the erection of school buildings, Upton, for the Torquay Elementary Schools Union. Mr. Edward Richards, architect, 3, Park-crescent, Torquay. Quantities by the architect :—

Vanstone & Mumford	£4,500 0 0	R. F. Yeo	£3,547 0 0
S. D. Wyatt	4,460 0 0	E. P. Bovey	3,355 0 0
J. Smerdon	4,424 0 0	H. C. Jackman	3,330 2 0
G. & H. Goss	4,350 0 0	C. Cocks	3,300 0 0
McKellar	£3,660 14 0	S. Blatchford	3,300 0 0
Horton & Co.	3,606 15 9	S. J. Tretheney	3,237 0 0

TRURO.—For the internal fittings of the new library, for the Truro Town Council :—

Wake & Dean, London	£289	John Julian, Truro*	£191 10
F. Battershill, Truro	195		

* Accepted.

WAKEFIELD.—Accepted for the erection of two houses, Lincoln-street. Mr. Abraham Hart, architect, 21, Barstow-square, Wakefield. Quantities by the architect :—

Excavating, Bricklaying, and Masonry.—S. Denison, Thornes	£313 0 0
Slating.—W. Atkinson, Leeds	27 18 0
Plastering.—J. Pratt, Wakefield	31 4 8
Carpentry and Joinery.—Alson & Hesling, Wakefield	153 10 0
Plumbing.—E. Kirk, Wakefield	85 0 0
Painting.—Thos. Naylor, Wakefield	5 8 0

WAKEFIELD.—For the execution of sewerage works, Shafton, near Barnsley, for the Hemsworth Rural District Council :—
R. A. Methley, Shafton £152

WARRINGTON.—Accepted for alterations, &c., to Bank House, Sankey-street, for the Corporation. Mr. Thos. Longdin, Borough Surveyor, Town-hall, Warrington :—
R. W. Collin, Marson-street, Warrington £900

WIGAN.—For the erection of thirty-seven cottages, Pottery, for the Corporation :—

H. & J. Dickinson	£5,350 0	Wilson & Son, Wigan*	£4950 0
Preston & Hirst	5,305 0	Darbyshire & Collett	4,854 0
A. Byewater	5,220 0	J. Sawbridge	4,830 0
Howard & Sons	5,051 0	J. Scott†	1,991 10
D. A. Ablett	4,963 0	J. Fairhurst†	1,778 0

* Accepted. † Tendered for fourteen cottages only.

WILLIAMSTOWN (near Dinas, Glamorganshire).—For the erection of lodge premises, for the "Rose of Ely" Lodge of Oddfellows. Mr. W. H. Dashwood Caple, architect, 1, St. John's-square, Cardiff. Quantities by the architect :—

D. C. Jones & Co.	£1,049 0	Cole & Co., Williams-town (accepted)	£566 0
W. Morris	614 2		

WILLIAMSTOWN (near Dinas, Glamorganshire).—For the erection of a pair of cottages, for Messrs. R. Morgan & D. George. Mr. W. H. Dashwood Caple, architect, Cardiff :—

D. C. Jones & Co.	£658 0	Cole & Co., Williams-town (accepted)	£336 8
W. Morris	410 4		

DERBY.—For the erection of Roman Catholic Church, Gordon-road, Derby, for the Rev. F. S. Ffrench. Mr. James Hart, architect, Corby, Grantham :—

E. Morley	£2,842 11 0	A. B. Clarke, Nottingham*	£2,708 0 0
H. Vernon	2,797 2 8		
H. J. Robinson	2774 9 11		

* Accepted.

LONDON SCHOOL BOARD TENDERS.

THE following lists of tenders were submitted by the Works Committee to the London School Board at their meeting on Thursday :—

CHELSEA (Kilburn-lane).—Exterior painting and interior cleaning.

S. Callow	£513 0	T. Cruwys	£297 0
E. T. Folley	488 0	F. T. Chinchen	294 12
H. C. Clifton	462 0	W. R. & A. Hide	290 12
G. Neal	460 0	W. Hornett	285 0
C. Gurling	370 10	W Brown*	267 0

*Accepted.

FINSBURY (Ecclesbourne-road).—Exterior painting and interio cleaning :—

G. Chase	£903 0	C. Dearing & Son	£308 0
F. Britton	476 5	Stevens Bros.	295 10
J. Grover & Son	404 0	W. Hornett	288 0
McCormick & Sons	373 0	Marchant & Hirst*	234 0

* Accepted.

EAST LAMBETH (Faraday-street).—Providing and fixing complete low-pressure hot-water apparatus and Trentham boiler :—

Maguire & Son	£584 10	J. F. Clarke & Sons	£487 0
James Gray	532 10	W. Richardson & Co.	474 0
J. C. & J. S. Ellis, Ltd.	507 10	J. Frazer & Son	444 0
W. G. Cannon	496 0	G. Davis	420 0
J. & F. May	489 0	Strode & Co.*	393 0

* Recommended for acceptance.

GREENWICH ("Slade").—Exterior painting and interior cleaning :—

J. Otway	£398 0 0	W. Banks	£229 17 6
A. J. Fenn	370 0 0	E. Proctor	227 0 0
Johnson & Co.	285 0 0	J. H. Hodgin*	218 0 0
Holliday & Greenwood	245 0 0		

* Accepted.

GREENWICH (Lewisham Bridge).—Providing and fixing tubular boilers in boys' and infants' departments, and additional coil in infants' department :—

J. C. & J. S. Ellis, Ltd.	£49 10	Vaughan & Brown, Ltd.	£39 0
James Gray	43 0	J. & F. May	38 10
Strode & Co.	43 0	J. Wontner-Smith, Gray & Co*	32 0
Duffield & Co.	39 10		

* Recommended for acceptance.

GENERAL SUPPLY OF RADIATORS:—

Radiators.	J. C. & J. S Ellis, Lim.	Carron Co.	J. Bartle & Co.	J. Grundy.	Coalbrookdale Co., Lim.	Carron Co.'s previous prices.	J. Bartle & Co.'s previous prices.
	£ s. d.	£. s. d.	£. s. d.	£. s. d.	£. s. d.	£. s. d.	£. s. d.
Two column radiators with top and bottom boxes, including air box and gratiug, complete, each	1 12 0	1 13 6	1 18 0	2 0 0	2 18 6	1 18 0	1 14 0
Three do. do. do.	2 10 0	2 17 0	3 0 0	3 5 0	3 15 6	2 15 6	2 11 0
Four do. do. do.	3 7 6	3 7 6	3 16 0	4 0 0	3 15 0	3 13 6	3 8 0
Five do. do. do.	4 4 0	4 2 6	4 15 0	5 0 0	4 15 0	4 12 6	4 5 0
Six do. do. do.	5 5 0	5 0 0	5 14 0	5 19 0	5 12 0	5 10 6	5 2 0
Seven do. do. do.	5 18 6	5 17 6	6 13 0	6 19 0	6 2 6	6 9 0	5 10 0
Eight do. do. do.	6 12 6	6 12 6	7 12 0	7 18 0	7 12 0	7 7 6	6 16 0
Ten do. do. do.	8 0 0	8 7 6	9 10 0	9 17 0	10 0 0	9 10 0	8 10 0

Tenders of Carron Co. and J. C. & J. S. Ellis have been recommended for acceptance.

HACKNEY (Berger-road).—Interior cleaning :—

Steven Bros.	£234 15	W. Shurmur	£162
J. Kybett	203 0	S. H. Corfield	140
Unsigned	185 10	Marchant & Hirst*	134
Collis Willmott	185 0	* Accepted.	

HACKNEY (Daubeney-road).—Exterior painting and interior cleaning :—

Morrison & Goodwin	£457 0	G. Wales	£359 19
J. Grover & Son	436 10	J. Kiddle & Son	297 0
W. Silk & Son	425 0	W. Shurmur*	297 0
Collis Willmott	390 0	* Accepted.	

HACKNEY (Lamb-lane).—Exterior painting and interior cleaning :—

W. Shurmur	£72 0	Morrison & Goodwin	£52 10
J. Kiddle & Son	59 0	W. Lawrence	49 0
W. Silk & Son	57 0	T. Nicholson*	48 11
Collis Willmott	52 15	* Accepted.	

HACKNEY (St. John's-road).—Interior cleaning :—

G. Chase	£515 0	W. Lawrence	£297 0
D. Gibb & Co.	383 0	T. Nicholson	259 10
G. Kirby	351 0	G. Barker	250 10
Vernall, Danes & Co.	320 0	G. S. S. Williams & Son*	222 10
McCormick & Sons	316 0	* Accepted.	

HACKNEY (Sigdon-road).—New school for 864 children, with playground on roof for boys. Manual training centre and schoolkeeper's house with room under :—

W. Gregar & Son	£19,145	W. Shurmur	£17,298
W. Pattinson & Sons	18,225	E. Lawrance & Sons	17,010
L. H. & R. Roberts	17,940	Treasure & Son	16,934
Clarke & Bracey	17,874	J. Grover & Son	16,878
Atherton & Dolman	17,789	C. Cox	16,699
J. Shillitoe & Son	17,540	W. M. Dabbs*	16,630
Killby & Gayford	17,494	* Recommended for acceptance.	

HACKNEY (Canal-road).—Re-arranging girls' and infants' offices, refitting the boys' offices, and new drainage scheme :—

Davis Bros.	£2,370	H. Knight & Son	£1,673
J. Grover & Son	1,725	McCormick & Sons	1,646
E. Lawrance & Sons	1,686	Stevens Bros.*	1,628
		* Recommended for acceptance.	

HACKNEY (Napier-street).—Refitting boys', girls', and one section of infants' offices with separate pans :—

H. Knight & Son	£558	Stevens Bros.	£489
Gregar & Son	530	Marchant & Hirst	420
Vernall, Danes, & Co.	530	R. A. Yerbury & Sons	415
G. Parker	495	F. G. Minter*	395
		* Recommended for acceptance.	

MARYLEBONE (Camden-street, old portion).—Exterior painting and interior cleaning :—

S. Callow	£440 10 0	G. Kirby	£270 0 0
Vernall, Danes & Co.	410 0 0	W. Chappell	261 10 6
J. Riley	387 0 0	T. Cruwys*	240 0 0
G. Foxley	300 0 0	*Accepted.	

SOUTHWARK (Pocock-street).—School for special instruction, additional water-closets for girls, &c. :—

Hart Bros.	£3,115	Staines & Son	£2,887
J. & M. Patrick	3,013	B. E. Nightingale	2,810
Dove Bros.	2,985	D. Chateris	2,815
Killby & Gayford	2,970	E. Lawrance & Sons	2,779
W. Downs	2,932	Johnson & Co.*	2,733
G. E. Wallis & Sons	2,897		
		* Recommended for acceptance.	

SOUTHWARK (Albion-street).—Providing and fixing a new sliding glazed partition and two air inlet shafts in girls' department :—

W. Hammond	£153 0	W. & H. Castle	£75 0
W. Downs	129 0	J. F. Holiday	61 10
A. Black & Son	100 0	H. Line*	56 0
Mid-Kent Building and Contracting Works, Limited	89 0	* Recommended for acceptance.	

TOWER HAMLETS (Millwall).—New school for 596 children; with schoolkeeper's house :—

W. Pattinson & Sons	£17,813	J. Shillitoe & Son	£15,980
W. Shurmur	17,631	W. M. Dabbs	15,858
W. Gregar & Son	16,960	C. Cox	15,844
Lathey Bros.	16,848	Treasure & Son	15,770
Atherton & Dolman	16,785	L. H. & R. Roberts	15,684
J. Grover & Son	16,761	J. & M. Patrick*	15,426
E. Lawrance & Sons	16,119	J. Longley & Co.	15,151
		* Recommended for acceptance.	

TOWER HAMLETS (St. John's, Halley-street). — Exterior painting and interior cleaning :—

Atherton & Dolman	£340 10	G. Barker	£271 0
D. Gibb & Co.	315 0	J. T. Robey	258 10
A. E. Symes	306 0	J. F. Holliday	245 0
Marsh, Tucker, & Co.	298 0	J. Kybett*	226 0
Jones & Groves	290 19	A. W. Derby	177 0
		* Accepted.	

WEST LAMBETH (Brixton-hill).—New school for 894 children, with schoolkeeper's house :—

H. Lovatt	£19,752	W. Downs	£18,387
J. Longley & Co.	19,600	D. Charteris	18,315
Lathey Brothers	19,524	G. E. Wallis & Son	18,273
Holloway Brothers	19,262	C. Cox	18,159
Peacock Brothers	18,963	J. Shillitoe & Son	18,123
J. & M. Patrick	18,867	Stimpson & Co.	17,890
B. E. Nightingale	18,849	Holliday & Greenwood	17,759
Hart Brothers	18,761	E. Lawrance & Sons	17,529
W. Pattinson & Sons	18,670	Kirk & Randall*	17,322
		Recommended for acceptance.	

WEST LAMBETH (Upper Kennington-lane).—Exterior painting and interior cleaning :—

W. King & Son	£603 0 0	J. Garrett & Son	£289 0 0
Maxwell Bros., Ltd.	369 0 0	G. Brittain	229 0 0
J. & M. Patrick	360 10 0	E. P. Bulled & Co.	228 0 0
W. Downs	323 0 0	H. Somerford & Son	211 0 0
G. Wood & Co.	308 10 0	Stimpson & Co.	203 10 0
F. G. Minter	295 0 0	E. Triggs*	194 2 6
	* Accepted.		

WEST LAMBETH (Waldron-road).—Exterior painting and interior cleaning.

H. Brown	£395 0	Stimpson & Co.	£310 0
W. Akers & Co.	366 0	J. Garrett & Son	297 0
Lathey Bros	361 0	E. Triggs	268 10
F. G. Minter	360 0	E. Flood	271 5
R. E. Williams & Sons	360 0	E. B. Tucker	218 0
W. Hammond	341 8	Lilley & Lilley, Ltd.*	204 0
	* Accepted.		

WEST LAMBETH (Effra-parade). — Exterior painting and interior cleaning :—

Peacock Bros.	£468 0	J. & M. Patrick	£367 0
Maxwell Bros., Limited	455 0	Holloway Bros.	306 0
A. Black & Son	450 0	H. Somerford & Son	282 15
Star & Son	395 0	G. Wood & Co.	265 0
R. Harding & Son	311 0	E. P. Bulled & Co.	259 0
J. & C. Bowyer	379 0	Lilly & Lilly, Limited*	225 0
	* Accepted.		

General supply of brushes for lavatory wastes :—

	Per doz.		Per doz.
G. B. Kent & Sons	£1 4 0	S. Chadwick	£0 13 0
R. H. & J. Pearson (Limited)	0 14 6	Carter & Aynsley*	0 12 9
		*Recommended for acceptance.	

ALTERATIONS AT 108, LANCASTER-GATE, W.—In our last issue, page 221, the amount of the tender by Messrs. Parkinson & Son for this work was stated to be £849. 10s., whereas the exact amount is £894. 10s. The error was not ours.

PRICES CURRENT OF MATERIALS.

TIMBER.		
Greenheart, B.G.	ton	£/o/o o/o/o
Teak, E.I.	load	11/o/o 16/o/o
Sequoia, U.S. ft. cu		1/10 2/o
Ash, Canada load		3/10/o 4/15/o
Birch, do.		3/5/o 5/o/o
Elm, do.		4/5/o 5/10/o
Fir, Dantsic, &c.		1/15/o 3/5/o
Oak, do.		4/5/o 3 15/o
Canada		6/5/o 7/15/o
Pine, Canada red		o/o/o o/o/o
Do. Yellow		3/o/o 5/5/o
Lath, Dantsic, fath		4/10/o 5/10/o
St. Petersburg..		5/o/o 6/10/o
Wainscot, Riga, &c., log		2/10/o 4/15/o
Odessa, crown		2/10/o 4/15/o
Deals, Finland		
2nd & 1st std 100		7/10/o 9/o/o
Do. 4th & 3rd		7/10/o 8/10/o
Do. Riga		7/10/o 8/10/o
St. Petersburg, 1st yellow		10/o/o 11/10/o
Do. 2nd yellow		8/o/o 10/o/o
Do. white		8/10/o 10/o/o
Swedish		7/10/o 16/o/o
White Sea		8/o/o 15/o/o
Canada, Pine 1st		23/5/o 23/10/o
Do. do. 2nd		16/o/o 17/o/o
Do. do. 3rd, &c.		8/o/o 10/15/o
Do. Spruce, 1st		9/o/o 10/10/o
Do. do. 3rd and 2nd		7/o/o 8/o/o
New Brunswick		6/10/o 7/10/o
Battens, all kinds		5/o/o 20/o/o
Flooring boards, sq., 1 in. prep. 1st		o/10/o o/15/o
Do. 2nd		o/6/o o/12/o
Other qualities		o/5/o o/7/o
Cedar, Cuba	ft.	/4½ /5
Honduras, &c.		/4 /5
Mahogany, Cuba		/3½ /6
St. Domingo, cargo av.		/4 1/3
Mexican do. do.		/4 /4½
Tobasco do. do.		/5 /7
Honduras do.		/5 /6½
Box, Turkey	ton	4/o/o 15/o/o
Rose, Rio		7/o/o 16/o/o
Bahia		6/o/o 15/o/o
Satin St. Domingo		o/1/7 o/1/o

TIMBER *continued*.		
Satin, Porto Rico		o/o/7 o/1/6
Walnut, Italian		o/o/3 o/o/7
METALS.		
Iron—Pig, in Scotland	ton	2/7/4½ o/o/o
Bar, Welsh, in London		5/12/6 5/15/o
Do. do. at works in Wales		5/2/6 5/5/o
Do. Staffordshire, in London		6/o/o 6/10/o
COPPER—British cake and ingot		48/10/o 49/o/o
Best selected		49/10/o 50/o/o
Sheets, strong		56/o/o o/o/o
Chili bars		44/16/3 45/1½
YELLOWM'TAL		10/o/4½ 7-16 o/o/4½
LEAD—Pig, Spanish	ton	11/o/o 11/2/6
English com. brands		11/2/6 11/5/o
Sheet, English, 6 lbs. per sq. ft. and upwards		12/10/o o/o/o
Pipe		13/o/o o/o/o
ZINC—English sheet	ton	18/5/o 18/10/o
Vieille Montagne		18/15/o o/o/o
TIN—Straits		60/15/o 61/5/o
Australian		61/10/o 62/o/o
English Ingots		64/10/o 65/o/o
Banca		61/5/o 61/10/o
Billiton		61/o/o 61/5/o
OILS.		
Linseed	ton	18 15 o 19/10/o
Cocoanut, Cochin		27/o/o o/o/o
Do. Ceylon		23/o/o 23/5/o
Palm, Lagos		21/15/o o/o/o
Rapeseed, English pale		24/10/o 25/o/o
Do. brown		23/o/o 23/10/o
Cottonseed ref.		16/10/o 17/5/o
Oleine		19/10/o 20/15/o
Lubricating, U.S.		6/6/o 9/o/o
Do. black		4/9/o 6/6/o
TAR—Stockholm	barrel	1/o/o o/3/o
Archangel		o/14/6 o/15/o

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TO CORRESPONDENTS.

J. A. (below our limit). J. D. (amount should have been stated). —J. P.—W. L. B. (below our limit). M. & Son (amounts should have been sent).—W. A. F. (no space).

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CHURCH BENCHES & PULPITS.
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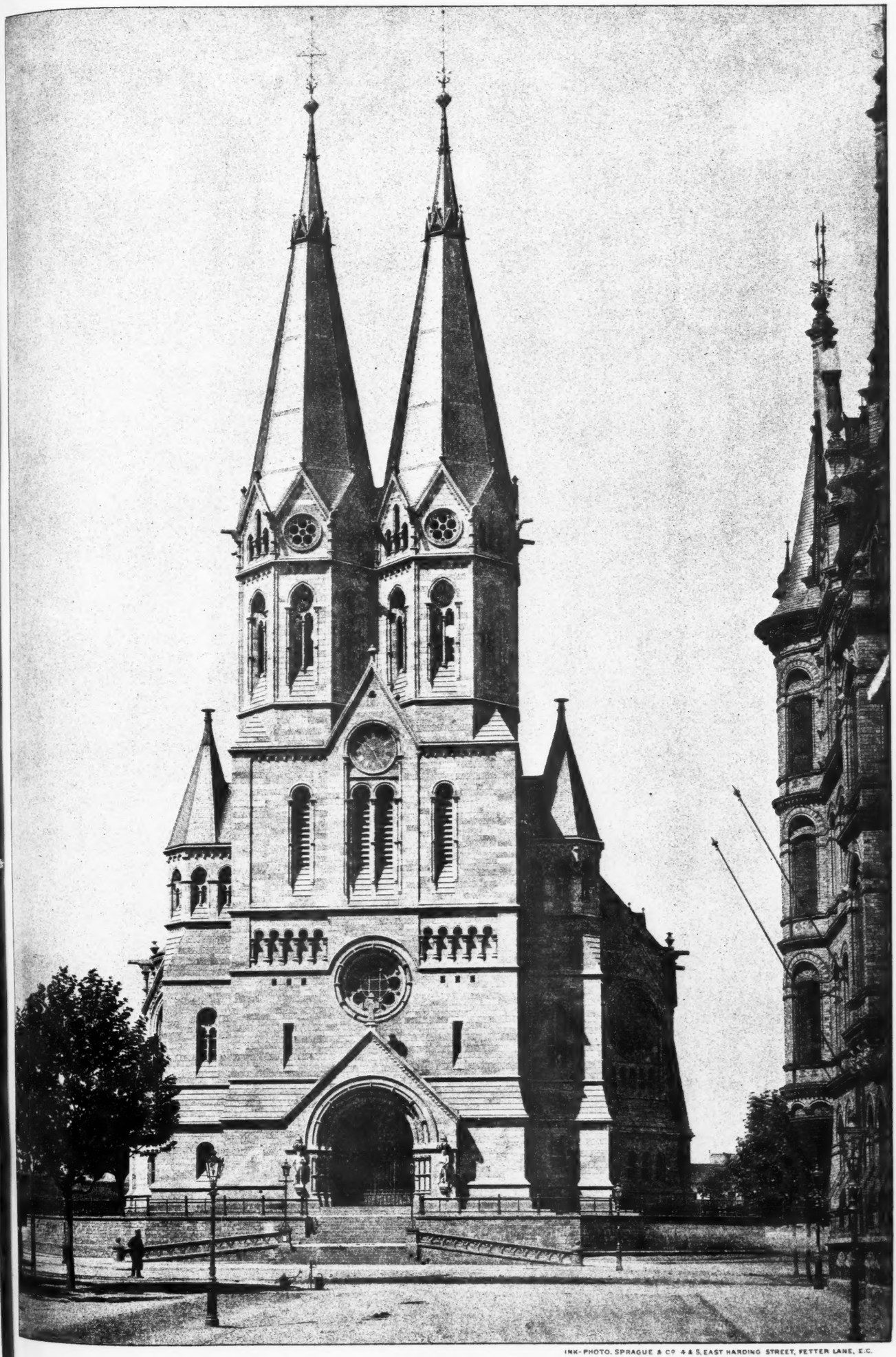
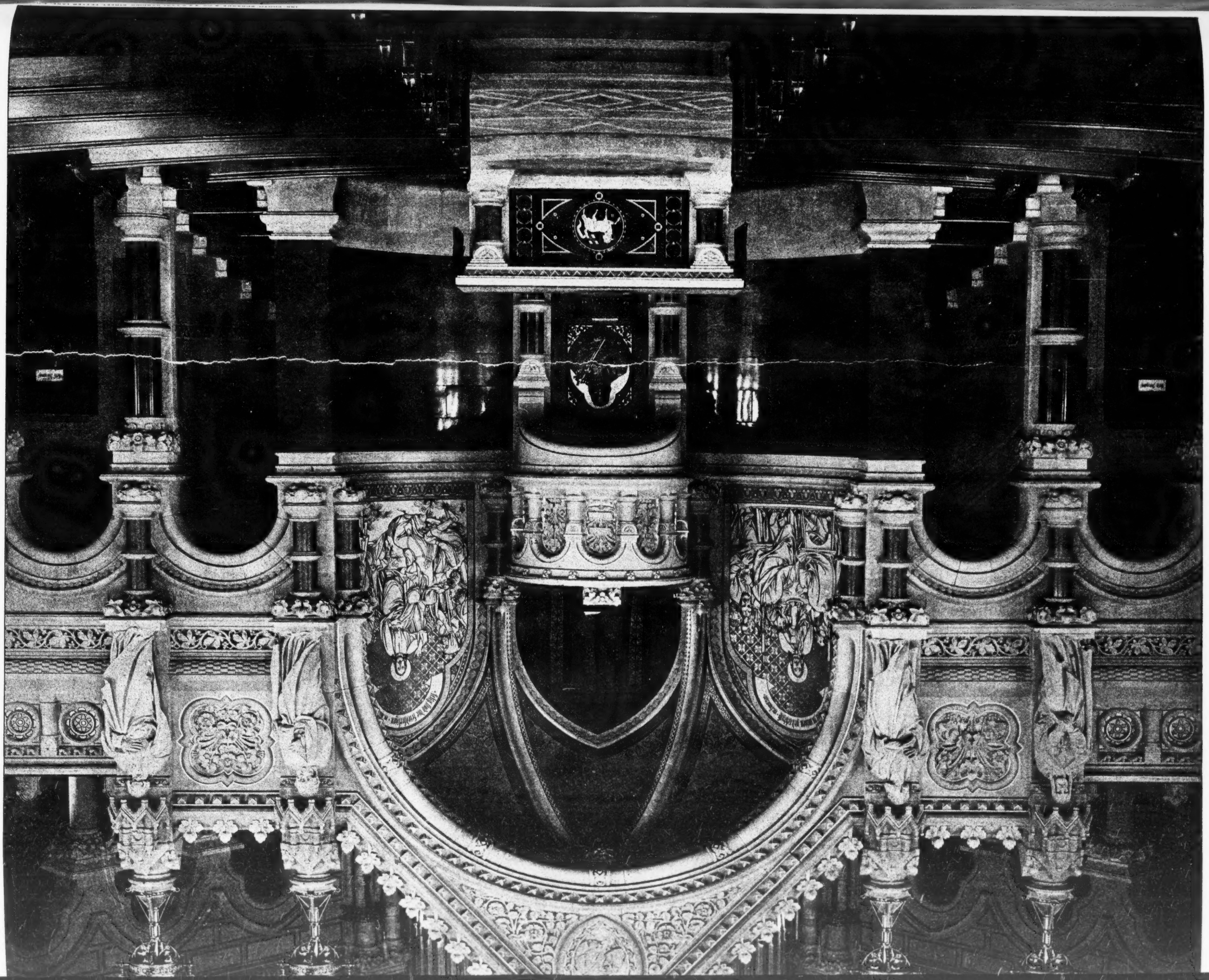
BERLIN MEMORIAL CHURCH.—Herr Fr. Schwechten, Architect.



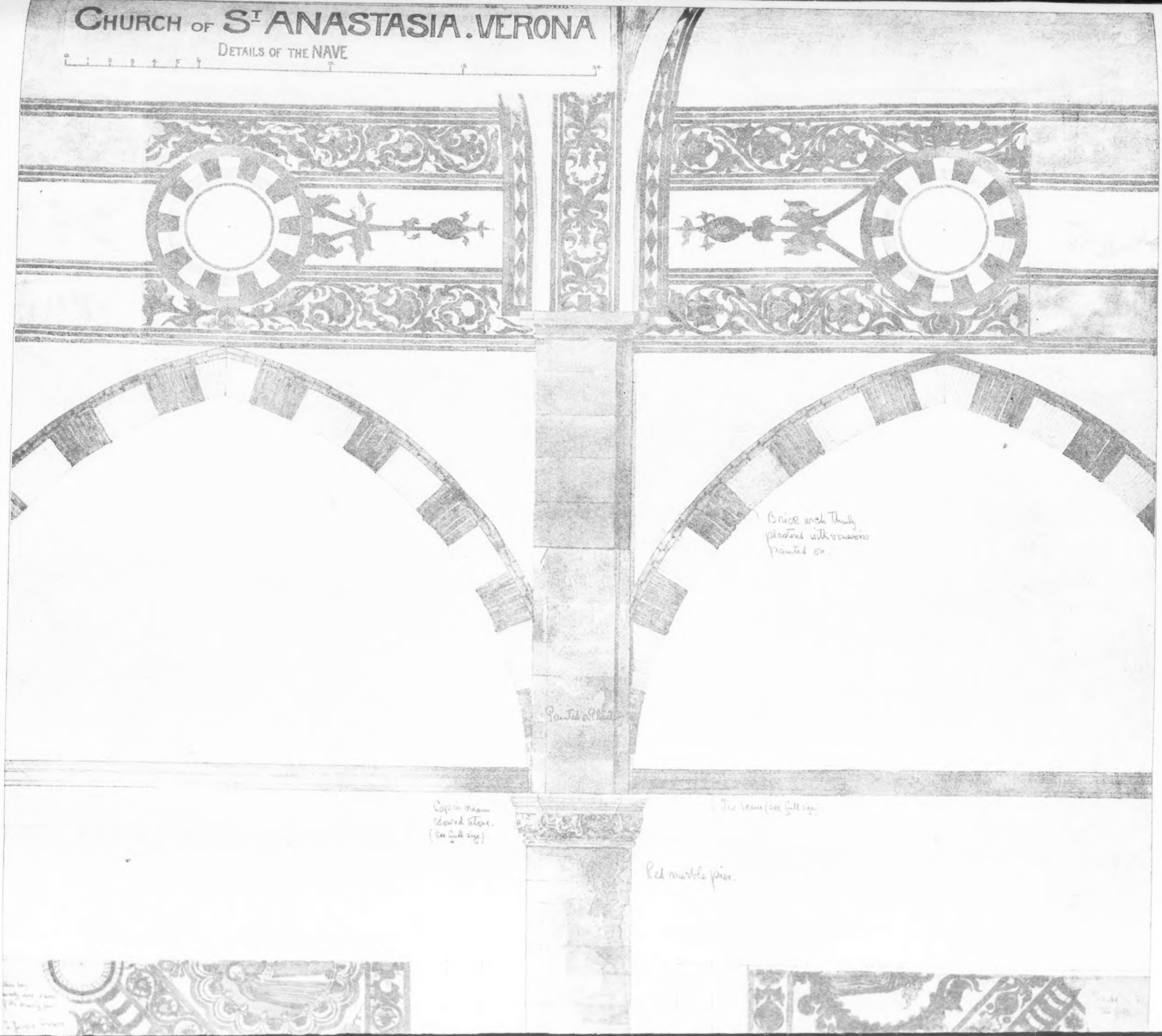
INK-PHOTO. SPRAGUE & Co 4 & 5, EAST HARDING STREET, FETTER LANE, E.C.

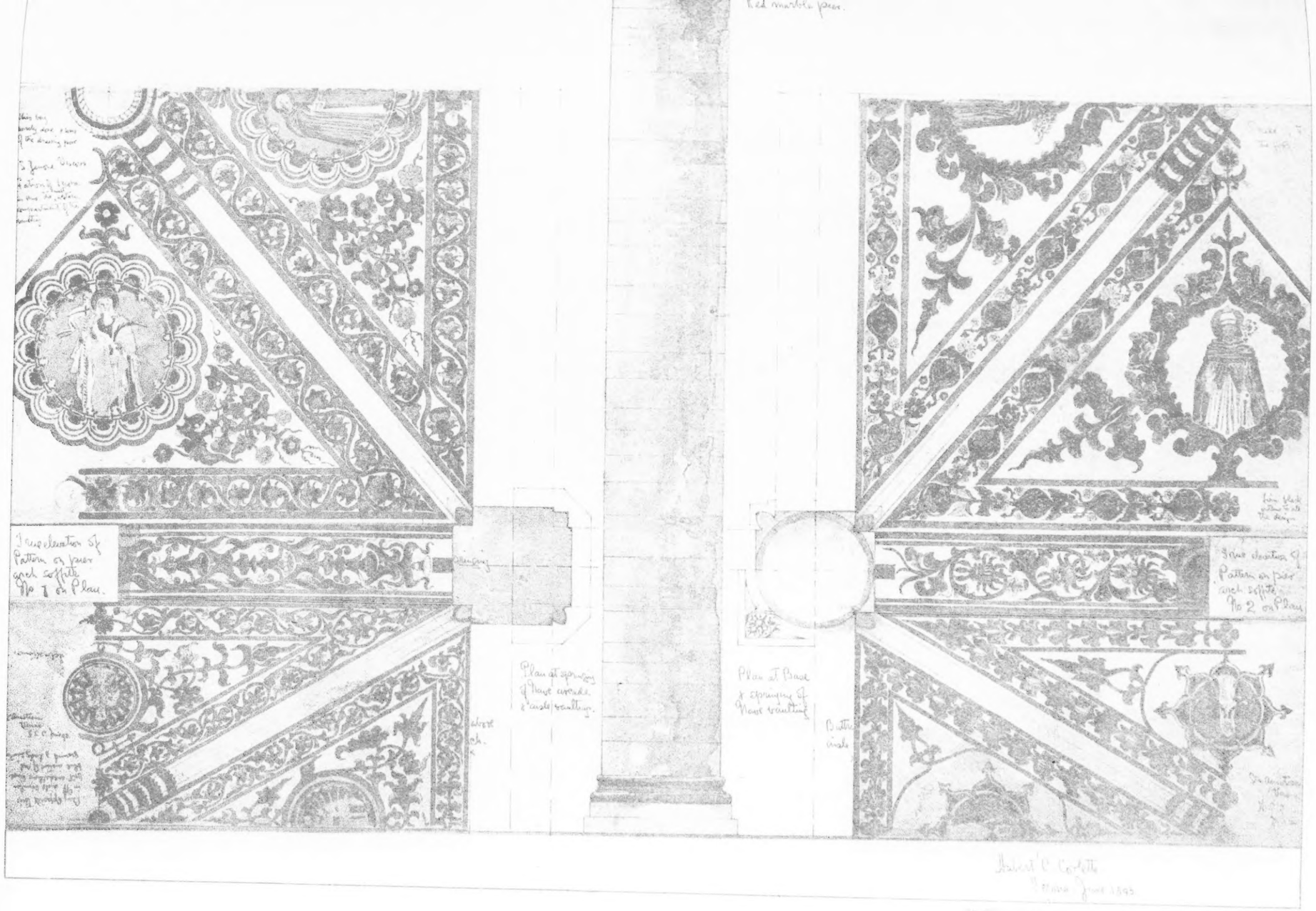
THE RING-KIRCHE, WIESBADEN: WEST FRONT.—PROFESSOR OTZEN, ARCHITECT.

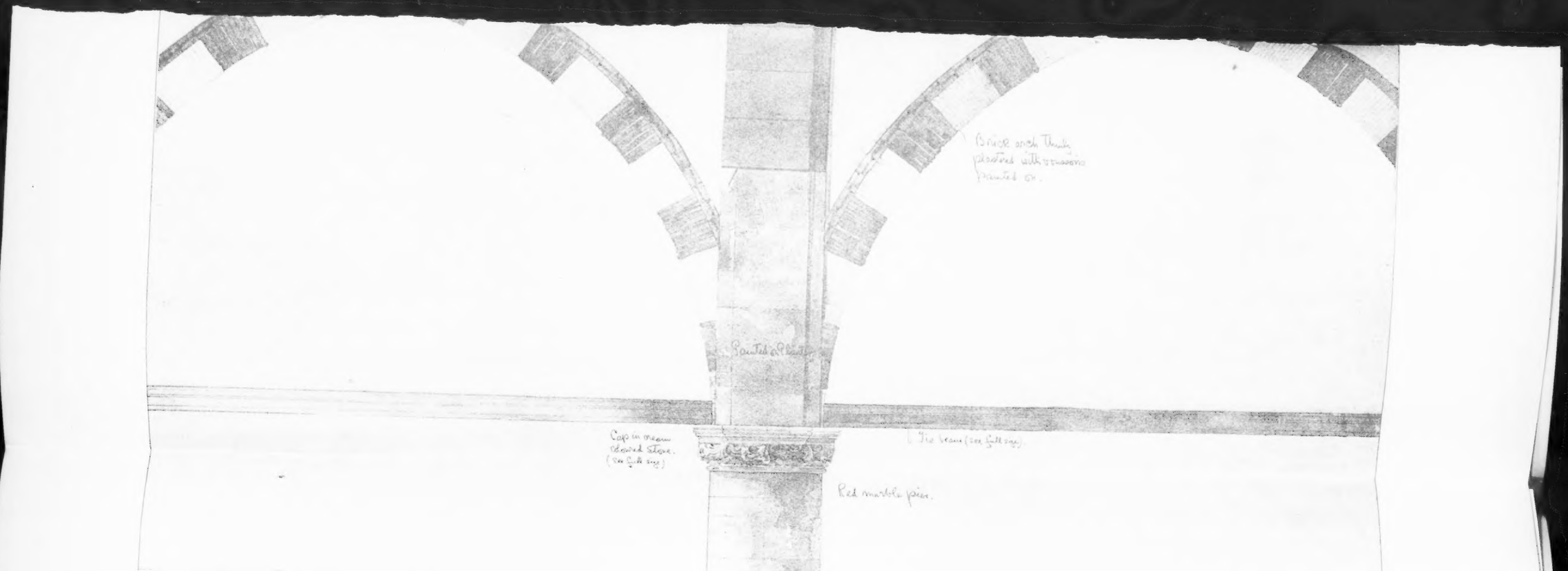


CHURCH OF ST ANASTASIA. VERONA

DETAILS OF THE NAVE

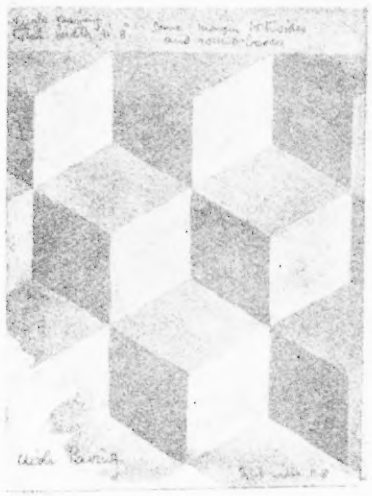

Brick arch thinly plastered with mosaics painted on.
Painted Plaster
Cap in cream coloured Stone. (See full size)
Tie beam (see full size)
Red marble pier.


Red marble piers.
Transverse section of Pattern on four arch soffits No 1 on Plan.
Plan at springing of Nave vaults & angle vaulting.
Plan at Base & springing of Nave vaulting
Transverse section of Pattern on four arch soffits No 2 on Plan.
Herbert C. Corlette
June 1893


Brick arch Thickly
plastered with stucco
painted on.
Cap in cream
Coloured stone.
(see Cutting)
Red marble pier.

CHURCH OF ST ANASTASIA . VERONA :

3 BAYS OF NAVE VAULT AND PAVEMENT

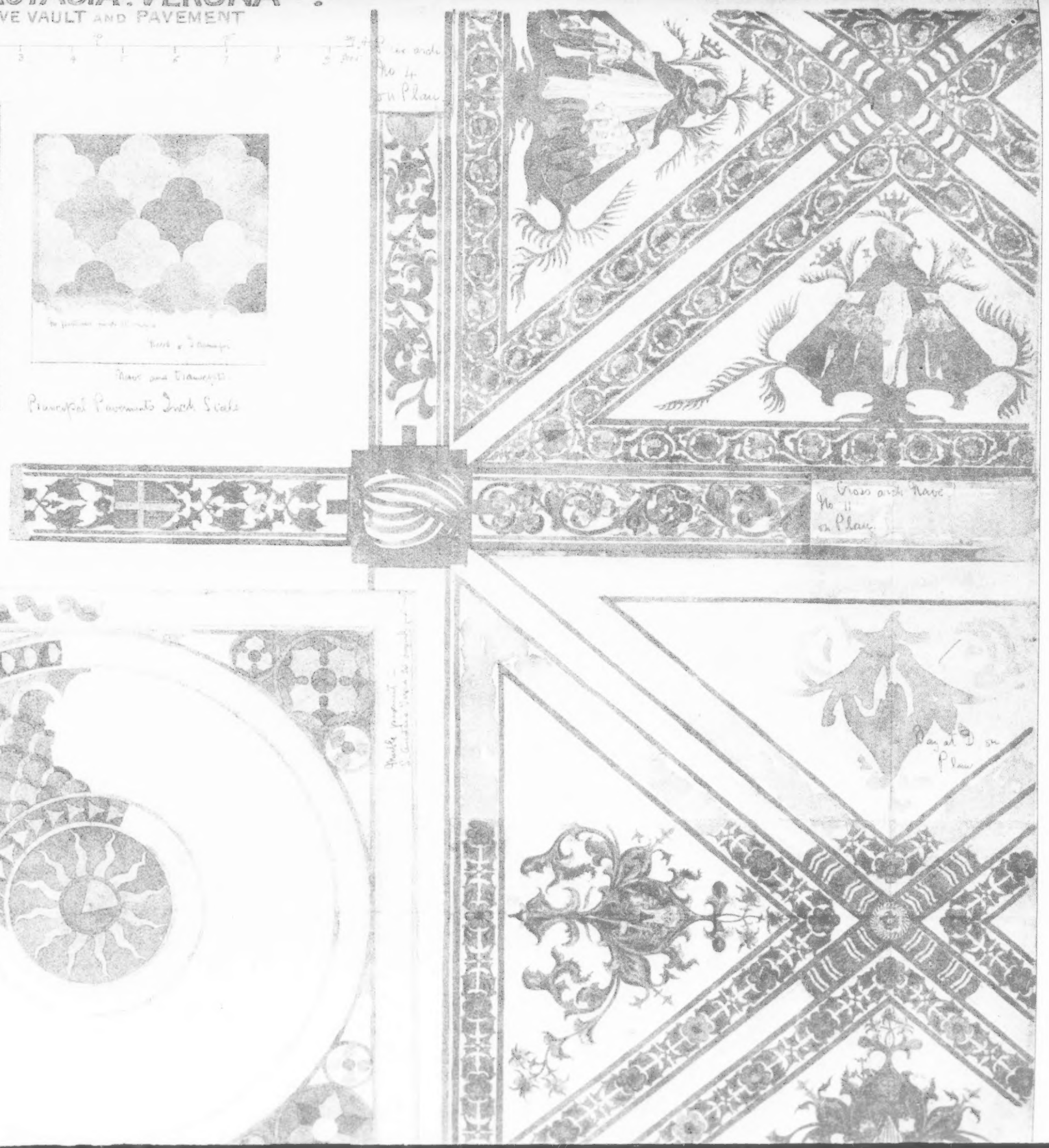


Nave and Transepts

Pavement Pavements Drawn to Scale

Cross aisle No 10 on Plan

Nave Pavement set Diagonally



Cross aisle No 11 on Plan

Cross aisle No 14 on Plan

Bay 2 on Plan

CHURCH OF ST ANASTASIA, VERONA :

Dep. of Conservation

Sketches of Pavements Victorian Court

0 1 2 3 4 5 10 feet

Herbert C Corbett

RIDGE

Plan of E on Plan